ICSE

# *Indian Certificate of Secondary Education Examination*

## REGULATIONS AND SYLLABUSES

**March 1984**





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This booklet contains :

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## THE COUNCIL

1. The Council for the Indian School Certificate Examinations was e; established in 1958 and is registered under the Societies Registration a Act No. XXI of 1860.

2. The Delhi Education Act, 1973, passed by Parliament, in Chapapter I under *Definitions* Section 2(s) recognises the Council as a bodyly conducting public examinations.

3. The Council was originally established by the University of Cambmbridge Local Examinations Syndicate with the assistance of the Interer-State Board for Anglo-Indian Education.

4. The Council has been so constituted to secure suitable representatation of Governments responsible for schools (which are affiliated to ththe Council) in their States/Territories ; the Inter-State Board for Anglglo-Indian Education ; the Association of Indian Universities ; the . Association of Heads of Anglo-Indian Schools ; the Indian Public Schoiools' Conference ; the Association of Schools for the I.S.C. Examinaiation and eminent educationists.

5. The Council conducts the *Indian Certificate of Secondary Educucation* and the *Indian School Certificate* examinations.

6. There is a Committee on Examinations and Subject Commiteeees for drawing up and revising syllabuses and receiving criticisms and d suggestions. The Council has its own teams of trained examiners, specicialists and advisers.

*Secretary*

# INDIAN CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

## CHAPTER I

### A. Introductory

A. The Indian Certificate of Secondary Education Examination has been designed to provide an examination in a course of general education, in accordance with the recommendations of the Kothari Commission, through the medium of English.

2. The Indian Certificate of Secondary Education Examination will ensure a general education without any diversification of studies as all candidates are required to *enter* and *sit* for the *six* subjects listed in Group I below (ref. p. 4) and Socially Useful Productive Work in Group II.

3. The Indian Certificate of Secondary Education Examination is a School examination and the standard of the examination presupposes a school course of ten years duration (Classes I-X).

4. Private candidates are not permitted to appear for the examination.

### B. Conditions of Entry

1. Entry to the examination in the case of candidates who are being entered for the first time is restricted to candidates in attendance at schools affiliated to the Council and registered for the Indian Certificate of Secondary Education.

Candidates can be entered only by the school they are attending and, in this respect, the decision of the Head of the school is final.

2. Candidates who were entered as school candidates, in accordance with 1 above, and who were not awarded Pass Certificates *may* be entered again by a school on the school entry form provided that such candidates are in attendance at an affiliated and registered School in the year of the examination.

Candidates can be entered only by the school they are attending and, in this respect, the decision of the Head of the school is final.

3. Candidates entered as school candidates in accordance with 1 or 2 above and who are not awarded Pass Certificates will be permitted to re-appear for the examination once only in the year following their failure, but not thereafter, without further attendance at an affiliated and registered school.

They must apply on the special form provided for the purpose, which will be obtainable from the Council's office, through the Principals of Schools from which the candidates appeared for the examination in the previous year and failed.

4. Candidates who have been awarded Pass Certificates will be permitted to enter for a Supplementary Pass Certificate without further attendance at an affiliated and registered school. They must apply on the special form provided for the purpose which will be obtainable from the Council's office through the Principals of Schools from which the candidates appeared originally for the examination.

5. There is no age limit for candidates taking the examination.

**C. Syllabuses**

The syllabuses of the Indian Certificate of Secondary Education for the Compulsory Subjects (Group I) and Socially Useful Productive Work (Group II) are obtainable from the Council.

**D. Withdrawal of Candidates**

Candidates may be withdrawn at any time previous to the commencement of the examination provided that due notice is given to the Council. In the case of candidates whose names are submitted on the entry form of the School [see B 1 and 2 above] notice of withdrawal must be sent to the Council by the Head of the school and, in this respect, the decision of the Head of the school is final.

Refund of fees in the case of the candidates duly withdrawn will be made in accordance with the conditions laid down under the heading 'Refunds' on page (xii) of these regulations.

**E. Disqualification**

If any of the regulations made for the conduct of the examination is disobeyed, the candidate or candidates concerned may be disqualified.

## CHAPTER II

*IMPORTANT NOTE* : **The responsibility for the correct selection of subjects to meet university or professional requirements of a candidate or candidates will be that of the school.**

### A. Subjects of Examination

#### Part I : Compulsory

**Internal Examination or Internal Assessment**

Candidates for the examination will be required to have completed satisfactorily courses in—

(a) a third language from at least Class V to Class VIII : (Internal Examination).
(b) Art : (Internal Assessment).
(c) Socially Useful Productive Work and Community Service (Internal Assessment).
(d) Physical Education.
(e) Education in Moral and Spiritual Values.

NOTE ON THE THIRD LANGUAGE

The third language to be studied should be determined as under :

Candidates of Indian nationality

(i) offering *Hindi* as a compulsory subject for the *External Examination* (see Part II) will be required to study *one* of the following languages : Assamese, Bengali, Gujarati, Kannada, Kashmiri, Malayalam, Marathi, Oriya, Punjabi, Sanskrit, Tamil, Telugu, Urdu or other Indian language approved by the Council.

(ii) offering *one* of the languages in (i) above other than Hindi, will be required to offer *Hindi* or other Indian language approved by the Council.

Candidates of other nationalities may be exempted from the study of a third language from the list given in (i) above, provided that they study an *approved* language for which provision is made *by* the school.

*Exemption from the study of a third language may be made in special cases : such candidates shall be required to complete a course of studies in another subject approved by the Council.*

## Part II : Compulsory

**Subjects of Examination at the end of Class X**

*Group I* : External Examination

1. English
2. Second Language
3. Civics, History and Geography
4. Mathematics Alternative A

   Or

   Mathematics Alternative B
5. Science Alternative A

   Or

   Science Alternative B
6. *One** of the following subjects
   - (i) Art
   - (ii) Music (Indian or Western)
   - (iii) Commerce
   - (iv) Economics
   - (v) Accounts
   - (vi) Commercial Organization and Office Practice
   - (vii) Technical Drawing
   - (viii) Home Science
   - (ix) Cookery
   - (x) Needlework
   - (xi) A Modern Foreign Language
   - (xii) A Classical Language
   - (xiii) Physical Education.

*Group II* : Internal Examination

1. Socially Useful Productive Work and Community Service.

**Note** : The assesment in "Socially Useful Productive Work and Community Service" will be made by the School and the result will count towards the award of the certifi-

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*The sixth subject will be examined in two parts as follows :

(a) **Part I** : One *written* paper of two hours on the syllabus.

(b) **Part II** : *Practical* or *Project* work to be undertaken by the candidates and assessed internally by the school.

cate. The school will be required to follow the instructions sent by the Council in the matter of keeping records of the work and the assessment of each candidate in "Socially Useful Productive Work and Community Service".

NOTE ON SECOND LANGUAGE

(a) Candidates of Indian nationality must offer *one* of the languages listed below :

Assamese, Bengali, Gujarati, Hindi, Kannada, Kashmiri, Malayalam, Marathi, Oriya, Punjabi, Tamil, Telugu, Urdu or another language of an Indian community approved by the Council.

(b) Candidates of other nationalities must offer either one of the languages listed above, or *one* of the following :

French, German, Spanish, or other language approved by the Council, for which provision is made by the school.

**B. Choice of Subjects**

1. All candidates for the examination must *enter* and *sit* for the written papers of all the *six* subjects of *Group I* and must have been examined by the School in practical/project work of the sixth subject of Group I and in Socially Useful Productive Work and Community Service of *Group II* ;

Provided that candidates reappearing for the examination without attendance at School in accordance with provision given in Chapter I, B, 3 will have to enter and sit for all the *written* papers of all the *six* subjects of Group I.

2. A School may not enter candidates for subjects for the teaching of which no provision is made by the School.

**Note : The responsibility for the correct selection of subjects to meet university or professional requirements of a candidate or candidates will be that of the school.**

**C. Awards and Conditions for awards**

1 PASS CERTIFICATES will be awarded to candidates who attain the pass standard in at least *five* subjects from Group I which must include the subject *English*.

Provided that no candidate except as otherwise exempted by the Council, shall be awarded a Pass Certificate unless in addition to fulfilling the conditions above he has attained a pass grade in SUPW and Community Service as examined/assessed internally by the School.

2 **SUPPLEMENTARY PASS CERTIFICATES** will be awarded to candidates who have obtained **PASS CERTIFICATES** and who appear in a subsequent examination and reach the *pass* standard in *one* or *more* subjects.

3. **STATEMENTS OF MARKS** will be issued to all candidates who are awarded Pass Certificates/Supplementary Pass Certificates.

**D. Issue of Results :**

All results will be issued through the Heads of Schools to whom results will be sent as soon as possible after the award has been completed. The result sheets show the result in the examination as a whole and also indicate the standard reached in each subject taken, except Socially Useful Productive Work and Community Service, by grades from 1 to 9, 1 being the highest and 9 the lowest. 1, 2, 3, 4 or 5 indicates a *pass with credit* 6 or 7 indicates a *pass* and 8 and 9 a *failure.* Very good is indicated by 1 or 2.

The standard reached in Socially Useful Productive Work and Community Service (Internally assessed) will be shown on the result sheets by grades A, B, C, D or E ; A being the highest and E the lowest. A, B, C or D indicates a *pass* and E a *failure.*

**E. Certificates etc.**

1. *Pass Certificates/Supplementary Pass Certificates* will be issued through the Heads of schools as soon as possible after the issue of results.

2. Duplicates of *Pass Certificates/Supplementary Pass Certificates* are *not* issued

**F. Ownership of answer scripts and other materials**

All written replies (answer scripts) and any other work done by candidates during the examination and the copyright therein are the property of the Council and will not be returned and every application to enter for the examination, (whether through a school or by an individual candidate) will be deemed to constitute an agreement by each candidate entered for the examination with the Council to assign such copyright to the Council.

**G. Evaluation of Answer of scripts**

1. The evaluation of answer scripts and of other work done by candidates during the examination is within the domestic jurisdiction of the Council and, therefore, no outside person or authority has jurisdiction to check/scrutinise the answer scripts or other work done by candidates.

2. The marking of answer scripts and of other work done by candidates during the examination by the Council or its examiners and the results of such marking shall be final and legally binding on all candidates and the Council will not, except in its absolute discretion, enter into correspondence about results with candidates or their parents or guardians or other persons claiming to act *in loco parentis*.

**H. Enquiries concerning examination results**

1. All enquiries concerning examination results on behalf of school candidates must be made to the Council by the Principal of the School concerned and must reach the Council not later than the specified date. Schools are asked to bear in mind that a large number of answer scripts are re-marked by Chief Examiners before the award.

Enquiries should be restricted to results which are *significantly* below the standard suggested by the candidate's school work in the subject.

2. The accuracy of a *subject grade awarded* will be checked on request, in *one* subject, *per candidate* only provided that the Principal of the School has good reason to believe that a mistake may have been made. Such applications must be made in the proforma (See Appendix) prescribed by the Council and must be received in the Council *not* later than one month after the receipt of the results by the schools. Schools will be required to pay a fee for each recheck.

3. If the Principal of a School considers that the results in one subject are *significantly* below reasonable expectation, the Council is prepared to ask the examiners for notes on the main weaknesses shown by the work of a few selected candidates. It is necessary to limit such notes to *one subject per school* on any one occasion of examination and to restrict the enquiry to the work of *not more than six* candidates whose work is *significantly* below the standard as suggested by the candidates' school work in the subject. Applications for making special notes must be received in the Council not later than one month after the receipt of the results by the school. A fee commensurate with the work involved will have to be paid to the Council.

**I. Re-examination**

The Council shall have the power to hold a re-examination or an additional examination, if the Council is satisfied that such a re-examination or additional examination is necessary.

**J. Last date for retaining answer scripts**

The Council does not undertake to retain answer scripts of candidates later than 60 days after the date on which the results are issued.

For *Enquiries concerning examination results* attention is invited to paragraph H above.

## CHAPTER III

**A. Use of unfair means**

1. If the Council is satisfied that a candidate has made previous arrangements to obtain unfair help in connection with the question papers from any persons connected with the examination centre or any agency within or outside the examination centre, the candidate is liable to have his results in the examination as a whole cancelled.

2. (i) Candidates who are detected in giving or obtaining, or attempting to give or obtain, unfair assistance, or who are otherwise detected in any dishonesty whatsoever will be reported to the Council and may be expelled from the examination room forthwith and refused admission to subsequent papers.

(ii) The Supervising Examiner or any member of the supervisory staff shall seize the answer scripts in which the use of unfair assistance is suspected.

(iii) The Supervising Examiner shall send the seized answer scripts with a report giving the details of the evidence and the explanation of the candidates concerned to the Council without delay and, if possible, on the day of the occurrence.

(iv) In case the candidates concerned refuse to give explanatory statements they should not be forced to do so, only the fact of refusal shall be recorded by the Supervising Examiner and attested by two members of the supervisory staff on duty at the time of the occurrence.

(v) The Supervising Examiner has discretion to permit such candidates to answer the remaining part of the question papers but on answer sheets separate from those in which the use of unfair means is suspected.

3. Candidates found guilty of :

(i) bringing in answer sheets ; or

(ii) taking out or attempting to take out answer sheets ; or

(iii) unlawfully substituting answer scripts or getting answer scripts replaced during or after the examination with or without the help of any person connected with the examination centre, or of any agency within or outside the examination centre,

shall be reported to the Council and their results in the examination as a whole will be cancelled.

4. If it is subsequently discovered and the Council is satisfied that candidates have either copied from other candidates or given opportunity to other candidates to copy from them or communicated dishonestly with other candidates, their results in the paper or subject or subjects in question or their results in the examination as a whole will be cancelled.

5. A candidate detected in approaching directly or indirectly an examiner or any member of the staff of the Council with the object of influencing him regarding the candidate's examination result shall have his result in the examination as a whole cancelled.

6. Candidates guilty of disorderly conduct or causing disturbance in or near the examination room are liable to be expelled from the examination hall forthwith and will be refused admission for subsequent papers.

7. (i) Candidates are not permitted to have in their possession, while in the examination room, any book, memorandum or pocket book, notes, or papers whatsoever, except the correct question paper. Candidates using slide rules as permitted by the regulations must see that any information (formulae or other data) shown on them is security covered. They must return any incorrect question paper to the Supervisor immediately.

(ii) Candidates disregarding this caution are liable to have their results in the examination as a whole cancelled.

8. (i) Persons obtaining admission to the examination on false representation shall be expelled from the examination hall forthwith and be reported to the Police.

(ii) Candidates who are impersonated shall be reported to the Council and their results in the examination as a whole will be cancelled.

9. (i) The decision in respect of the results of candidates who are suspected of using unfair means may be delayed considerably and will not be issued with the results of other candidates.

(ii) Candidates whose results in the examination as a whole have been cancelled may be debarred from entry to any subsequent examination.

10. A person who commits an offence under these regulations but is not a candidate, shall be dealt with as under :

(i) the Secretary to the Council may, if he so decides, hand the case to the Police.

(ii) in the case of a teacher or a person connected with an institution his conduct shall be reported to the Governing (or Managing) Body of the institution.

11. Entries may not be accepted from a school where any member of the staff has at any time committed any offence under these regulations.

12. If the Council is satisfied that the use of dishonest means in a paper or papers has been widespread at a centre, the Council reserves the right to cancel the results of all candidates of that centre in the paper or papers concerned, or in the entire examination at the centre if several papers are involved.

13. For cases of unfair means not covered by these regulations, the Council may enforce penalties according to the nature of the offence.

**B. Power to alter, cancel results, certificates etc.**

1. The Council shall have the power to alter or cancel the result of a candidate after it has been declared, if

(i) the candidate is found guilty of having used unfair means : or

(ii) a mistake is found in his result.

2. The Council shall have the power to cancel a *Pass Certificate/Supplementary Pass Certificate* which has been defaced or altered in any detail without the authority of the Council or which has been obtained by impersonation or by false representation of facts or by fraudulent or dishonest means of any kind.

## CHAPTER IV

### A. A General Arrangements

**1. Date of examination** : The printed time-table will be made available to all schools well before the examination.

**2. Centres of examination :** Centres for each town or area will be arranged by Heads of Schools concerned in consultation with the Council.

**3. Forms of entry** : Entry forms will be supplied to schools in March/April on application.

The forms and fees must be returned to the Council, New Delhi. *Late entries will not be accepted.*

**4. Transfers** : The *transfer* of a candidate from a centre in one town to a centre in another town will be allowed only within the same examination and for reasons accepted as adequate and on payment of a special fee. An additional charge may be made if it is necessary to send copies of question papers by air to the centre of transfer. Applications, naming the town to which a transfer is desired, should reach the Council two months before the commencement of the examination.

**5. Name and Date of Birth** : Special attention must be paid to entering correctly the name and date of birth of candidates. The Certificate will show the 'Date of Birth' as certified by the Principal of the School at the time of entry. No subsequent change in the name or date of birth will be permitted, except, if

(i) the Council makes a mistake in copying the Name/Date of Birth from the Entry Form on to the Certificate, and

(ii) the Principal of the candidate's School certifies that he made a mistake in entering the Name/Date of Birth in the Entry Form.

**6. Entries for less than a certificate** : Candidates who have obtained *Pass Certificates of the Indian Certificate of Secondary Education* may subsequently enter for one or more subjects. A candidate who reaches the pass standard in the subject/subjects offered will receive a *Supplementary Pass Certificate.*

**7. Examination fees.* The scale of fees will be notified separately.** Cheques/Bank Drafts should be made payable to the *Council*

*The Council reserves the right to increase the fees should this prove necessary.

*for the Indian School Certificate Examinations, New Delhi.* Payment should be sent at the same time as the forms of entry.

Candidates will be required to pay for Migration Certificates.

Arrangements for Practical examinations and visits of examiners are made by the Heads of Schools, with the approval of the Council. No fees are payable to the Council for these, but there may be a special local fee to cover the cost.

**8. Refunds**

(a) Refunds may be made in respect of candidates who may be withdrawn from the examination *provided* that the Head of the School notifies the Council not later than the specified date. The Council does not undertake to arrange for refunds to be made in cases where notification is received later than that date. No refund can be made for a candidate who has taken any part of the examination.

(b) The refund will amount to *half* the amount of the *subject fee* already paid.

(c) *Refunds will ordinarily be made in the month following the declaration of results.*

**9. Infectious diseases :** Candidates who have been exposed to any infectious disorder cannot be examined at a centre unless they are out of quarantine.

**10. Time allowance for question papers.** Any time specially allocated for reading through question papers or studying maps will be stated on the question papers.

**11. Materials to be provided by candidates :** Candidates must provide pencils, rubber, mathematical and dissecting instruments and painting materials. They are required to write their answer with *pens and black ink* ; fountain pens and ball-point pens may be used, but pencils may be used only for diagrams. The use of slide rules is permitted in science subjects, but candidates using them should state this on their scripts and should be warned of the possible loss of accuracy involved. *Information such as formulae or other data which appears on slide rules must be securely covered before they are taken into the examination room.* Mathematical tables will be provided ; candidates are not allowed to take mathematical tables into the examination room. **The use of electronic, hand, desk or other type of calculator is not permitted.**

**12. School estimates** : Principals of schools may submit school

estimates on a special form available from the Council for any candidate for whom special consideration is asked because of illness or other difficulty experienced *during* the examination.

**13. Statement of result**

*A fee is payable to the Council for the issue of a certifying statement of an examination result ; this fee should be forwarded with the application. The statement will normally be sent to the authority to whom it has to be produced.*

**B. Subjects Syllabuses**

*No special editions of books are prescribed except those which are mentioned specifically ; the Council cannot undertake to recommend text-books.*

*In every subject, unless otherwise stated, standards will be assessed on the performance in the different papers in the subjects.*

*Attention is called to the fact that the ability of candidates to express themselves clearly and to present their answers neatly and accurately is taken into account in assessing their work in all subjects.*

Syllabuses of the subjects for the examination are available, on payment, from the Council.

**C. Special Papers and Alternative Syllabuses**

The Council is prepared to consider requests for special papers, (i) in a subject for which no provision is made in these regulations (ii) on a syllabus different from that prescribed in one of the subjects of the examination. Such papers and syllabuses must be of an equal standard with those to which they are proposed as alternatives.

A fee to cover the extra cost involved will normally be payable for each paper especially made for a small number of candidates. Applications should be made to the Council *at least two years* before the examination is to take place.

**D. Equivalence and Recognition**

Will be notified separately.

## APPENDIX

*Proforma for a Principal to apply for a recheck of subject grade*

I have good reason to believe that a mistake may have been made in the result of candidate.....Index No.....

in subject.....

In accordance with regulations, Chapter II H. (2) Page (vii), I hereby apply for a recheck to be made on the accuracy of the subject grade awarded to candidate.....

Index No.....in subject.....

The results of the recheck may be communicated to me in due course.

The fee of Rs. 30/- for this recheck is enclosed herewith/sent separately.

*Signature of Principal*

## ICSE SYLLABUSES

## DETAILED SYLLABUSES

### 1. ENGLISH

There will be *two* papers of *two* hours each.

**Paper 1**—ENGLISH LANGUAGE (*Two hours*)

**Objective** :

To test the capacity of candidates to express their ideas and feelings in their own words and to test their ability to understand and use current English.

There will be *one* paper of 2 hours duration. *Four* questions will be set, all of which will be compulsory.

**Question 1** : Candidates will be required to write a composition from a choice of subjects. The subjects will be varied and may be suggested by language or by other stimuli such as pictures or objects. The subjects will be so chosen as to allow the candidates to draw on first-hand experience or that which stimulates their imagination.

With some subjects suggestions may be given, but the use of the suggestions will be optional and a candidate will be free to treat the subjects in any way that he chooses.

The organisation of subject-matter ; syntax and punctuation will be expected to be appropriate to the mode of treatment.

**Question 2** : Candidates will be required to write a letter from a choice of two subjects. Suggestions may be given. The lay-out of the letter with address, introduction, conclusion, etc., will form part of the assessment.

**Question 3** : An *unseen* passage of prose of about 250 words will be given. Questions will be set to test the candidate's knowledge and understanding of items of vocabulary, structure and usage taken from the passage. All questions will have to be answered. The last question will consist of a summary. Candidates will be given clear indications of what they are to summarize and of the length of the summary.

**Question 4 :** (20 marks)—An *unseen* passage of prose consisting of about 400 words will be given. No uncommon items of vocabulary or structure will occur. A number of questions requiring short answers will be asked on the passage. These questions will test the candidate's ability to understand the content and argument or narrative sequence and to infer information, intentions attitudes from the passage.

**Note :** It has been recommended that the study of English language should be linked directly with the reading of a book or books well written in English. The following book is recommended for background reading :

"*Selected Readings*"
Ed. Dorothy P. Tullett
Pub Frank Brothers & Co.,
Chandni Chowk, Delhi-110006.

**Paper 2**—LITERATURE IN ENGLISH (*Two hours*)

**Objective :**

To provide candidates with experience of good and appropriate literature in English.

Candidates will be required to answer *five* questions from at least *three* books, one of which must be drama, one prose and one poetry.

*Prose and Drama*

Texts for the study of prose and drama will be set. Questions set will be central to the book and designed to test response and ability to relate the matter of the book to the candidate's own experience rather than memory.

Questions on prose and drama may be of the type in which a passage of importance is printed and questions are set leading from the passage outward to the experience of the book as a whole.

*Poetry*

A poem or passages from poems will be given and questions will be set which are designed to test response to the poem. The questions will not focus attention on verbal difficulties but will elicit the significance and spirit of the passage.

*For list of Prescribed Texts see separate leaflet.*

## 2. (a) INDIAN LANGUAGES

**Objective :**

To test the *use of language* as a living means of communication and in particular the spoken language.

The syllabus is intended to permit considerable freedom to the teachers. Emphasis in teaching must, however, be laid on the basic structural patterns of the language and on vocabulary and constructions which are in common use.

Papers will be set in the following languages :

Assamese, Bengali, Gujarati, Hindi, Kannada, Khasi, Marathi, Malayalam, Oriya, Punjabi, Tamil, Telugu, Urdu or another language of an Indian community approved by the Council.

*NOTE :* For languages in which the entry is not large enough a special paper fee may be necessary.

There will be *two* written papers of *two* hours each.

**Paper 1**—LANGUAGE (*Two hours*)

*Four* questions will be set, all of which will be compulsory.

**Question 1 :** Candidates will be required to write, in the language, *two* short compositions, in various forms, which may include short explanations, directions, descriptions, or narrative. There will be a choice of subjects which will be varied and may be suggested by language or other stimuli such as pictures or objects.

**Question 2 :** Candidates will be required to write a letter from a choice of two subjects. Suggestions may be given. The lay-out of the letter with address, introduction, conclusion, etc., will form part of the assessment.

**Question 3 :** An unseen passage of about 250 words will be given in the language.

Questions in the language will be set for answer in the language, designed to test the candidates' understanding of the content of the passage.

**Question 4 :** This will consist of tests in vocabulary, syntax and idiom, e.g., synthesis in sentence construction, formation of sentences in the language correctly embodying given words or forms. The question will not require any knowledge of grammatical terms.

**Paper 2**—LITERATURE (*Two hours*)

Ordinarily *three* text-books will be prescribed.

Candidates will be required to answer *five* questions, *at least one* from each of the *three* prescribed text-books.

All questions will be set in the language and candidates will be required to answer in the language.

The questions set will be central to the books prescribed and will be designed to test the understanding of the subject matter of the book to other parts or the whole book.

As a rule the questions set will be *structured* questions and other types of questions requiring brief answers.

**Essay type questions will not be set.**

*For list of Prescribed Texts see separate leaflet.*

**Oral Examination** (Compulsory).

**Internal Assessment**

(*a*) *Reading* :

The examiner will select a reading passage of about 100 words which will be supplied to the candidate. Each candidate will be given three minutes in advance to study the passage. The purpose is to test the candidate's ability to read aloud intelligently. Correct intonation and prounciation will be given credit. No questions will be asked to test comprehension of the passage.

(*b*) *Conversation* :

(i) The examiner will read a passage from one of the prescribed texts and will ask questions on the passage.

(ii) The examiner will ask five or six questions associated with the following topics allied to them :

the family (age, profession, relationship), the street, travel, the human body, clothes, routine of daily life, meals, work, shopping, weather, countryside, seasons, months, days, the time, numbers, dates.

## 2. (b) MODERN FOREIGN LANGUAGES

Papers will be set in French, Spanish, German and other modern foreign languages on request. A special paper fee will have to be paid.

There will be *two* papers of *two* hours each as follows :

**Paper 1**—LANGUAGE (*Two hours*)

*Three* questions will be set, all of which will be compulsory.

**Question 1** : Candidates will be required to write, in the language, two short compositions in various forms, which may include short explanations, directions, descriptions or narrative. There will be a choice of subjects which will be varied and may be suggested by language or other stimuli such as pictures or objects.

**Question 2** : Candidates will be required to write a letter from a choice of two subjects. Suggestions may be given. The lay-out of the letter with address, introduction, conclusion, etc., will form part of the assessment.

**Question 3** : This will consist of tests in vocabulary, syntax and idiom, e g., synthesis in sentence construction, formation of sentences in the language correctly embodying given words or forms. The question will not require any knowledge of grammatical terms.

**Paper 2** : (*Two hours*)

The following tests will be set :

(1) An unseen passage of about 250 words will be given in the language. Questions in the language will be set for answer in the langnage, designed to test the candidates' understanding of the content of the passage.

(2) Two short passages will be set for translation from the language into English.

(3) One passage will be set for translation from English into the language.

## 3. HISTORY, CIVICS and GEOGRAPHY

The syllabus aims at providing the kind of comprehensive knowledge of Civics, History and Geography which is required of a pupil who is to grow into an enlightened citizen in a democracy.

There will be *two* papers of *two* hours each.

The main objectives of the syllabus are :

**Paper 1**—CIVICS AND HISTORY (*Two hours*)

**Objectives :**

1. To provide an understanding and appreciation of the various forces which have contributed to the creation of our nation with its present problems.
2. To awaken in the pupils desirable understanding of the various streams which have contributed to the development and growth of the Indian nation and its civilization and culture.
3. To provide an idea of the causes that have led to the present state of the world.

**Paper 1** will be divided into *two* parts as follows :

**Part I** Civics and Cultural History of India (*one hour*) will consist of short answer questions. Candidates will be required to answer all questions.

**Part II** History (*one hour*) will consist of structured and short essay-type questions. This part of the paper will be divided into *three* Sections, A, B and C. Candidates will be required to answer *four* questions from *one* or more Sections.

### PART I
### Civics

1. *Our Constitution*
   (a) The Preamble.
   (b) Directive Principles of State Policy.
   (c) Fundamental Rights : their significance in democracy.
2. *The Framework of our Government*
   (a) (i) The Union Parliament : The Rajya Sabha and Lok Sabha : Parliamentary procedures.

(ii) The Union Executive :
  (1) The President : election, term of office, powers.
  (2) The Vice-President : election, term of office, functions.
  (3) The Cabinet : Composition; appointments; powers and functions. Position of the Prime Minister. Collective and individual responsibility of the members of the Cabinet.
  (4) Other Ministers.

(iii) The Union Judiciary : The Supreme Court.

(b) (i) The State Legislature : the Vidhan Sabha and the Vidhan Parishad. Composition (one or two Houses).

(ii) The Executive :
  (1) Governor : the Head of the State; term of office, powers.
  (2) Council of Ministers : The Chief Minister and other Ministers ; appointment ; term of office ; powers ; collective and individual responsibility ; relationship with the legislature.

(iii) The State Judiciary :
  (1) High Court.
  (2) Subordinate courts, District and other courts ; relationship with High Court.

(c) Local Self-Government (Urban and Rural).

**Religious and Cultural History of India**

1. *The Indus Valley Civilization* : Religion, art, script, as evidenced by the objects found in excavated towns.

2. *The Aryans* : The Vedic religion, worship and religious sacrifices. Education through Gurukuls.
   The four Vedas. The Indian epics : Mahabharata and Ramayana.

3. *Jainism and Buddhism* : Vardhamana Mahavira and Jainism—Gautama Buddha and his religious movement—Hinayana and Mahayana Buddhism.
   Buddhist and Jain cave temples (Chaityas) and monasteries (Viharas) : Ajanta, Ellora, Karle, Udayagiri (Orissa).
   Buddhist schools of art : Ashoka pillars, the Sanchi Stupa, Gandhara and Kushana Schools.
   Christianity in India.

4. *The Golden Age of Indian Culture* : Revival of Hinduism. Classical Sanskrit literature : Kalidasa and his plays and poems ; Panchatantra : Harshacharita. Famous Universities : Nalanda, Takshila. Architecture : temple at Deogarh.

Sculpture : Mathura and Sarnath Schools. Painting : Ajanta. Science : medicine, mathematics, astronomy.

Indian culture in south-east Asia : Borobodur, Angkor Vat. Parsis and Jews in India.

5. *Rajput contribution* : Rajput customs—Rajput literature and the growth of Indian languages. Art : Khajuraho : Kandareya Mahadeva. The Dilwara temples, in Mount Abu.

Bhubaneswar : Lingaraja, Mukteshwara. Konarak : Sun Temple. Rajput painting : Rajasthani and Pahari Schools.

6. *The Deccan and South India* : The Dravidians and their origin. The temples of South India—the temple as the centre of community life. South Indian languages and their literature : Tamil—the Sangam, the Kural—Kannada, Telugu, Malayalam. Art : Ellora : The Kailasa Temple. The Hoysalas : Belur and Halebid. Mahabalipuram : the Rathas and the Shore Temple. Thanjavur : Brihadeswara Temple. Vijayanagar : Hampi. Madurai : The Minakshi Temple.

7. *Impact and contribution of Islam* : Sufism—the Bhakti cult, Kabir, Chaitanya, The Persian language, Amir Khusrau ; Abul Fazal Urdu. The Muslim schools of architecture : New artistic traditions and ways of construction—The Qutab Minar, Delhi and Agra forts, Humayun's Tomb, Gol Gumbaz, Fatehpur Sikri, the Taj Mahal.

8. *The Marathas and the Sikhs* : Influence of the Maratha saints : Dnyaneshwar, Tukaram, Ramdas, Guru Nanak and Sikhism.

9. *Western contribution* : Influence of Christianity. Reform Movements : the Brahmo Samaj, the Arya Samaj, the Ramakrishna Mission, Sawami Vivekananda. Impact of English language and Western education on India. Western studies to revive India's cultural past; the work of Charles Williams, William James, Max Muller, James Princep, Alexander Cunningham.

## PART II
## SECTION A

### Political History of India till the end of the Mughal Period

1. *The Harappa Culture* : Extent—urban organization—building—commercial relations.

   *The Aryans* : Origin and coming of the Aryans to India—the Aryan Kingdoms—Growth of Magadha—Alexander.

2. *The Mauryan Empire* : Chandragupta Maurya: Establishment and growth of the Empire. Ashoka : Ideal of kingship—policy and administration—extent of the Empire. The Kushanas and Kanishka.

3. *The Gupta Empire* : Chandragupta I : Establishment of the Empire—Samudragupta : Conquests and extension of the Empire—Chandragupta II : Conquests and extension of the Empire—administration of the Empire—Evidence of Fa-Hien.

4. *Harshawardhana* : Conquest and extent of the Empire—Evidence of Hiuen Tsang.

   *Some Medieval Kingdoms* : The Pallavas under Narasimhavarman. The Chalukyas under Pulakesin II. The Cholas under Rajaraja I and Rajendra Chola.

5. *The Sultanate* : Mahmud of Ghazni : Invasion—causes and results. Muhammud Ghori : Conquests and establishment of the Delhi Sultanate. Qutubuddin and Iltutmish : Consolidation of the Sultanate. Allauddin Khilji : Extension of the Sultanate, administrative measures. Muhammad bin Tughlaq : Character, reforms. The Vijaynagar Kingdom under Krishna Deva Raya. The foundation of the Bahamani Kingdom.

6. *The Mughal Empire* : Babar : Conquests and establishment of the Empire. Sher Shah : Conquests—administrative reforms : land revenue, justice, army, trade and commerce, transport and communications. Akbar : Conquests and extent of empire—Administration—land revenue—Mansabdari system. Aurangzeb : Military campaigns—internal revolts—war with Rajputs and Marathas.

## SECTION B

**Political History of India from the Maratha Period to the present day.**

1. *The Maratha power* : Shivaji : establishment and administration of the Maratha kingdom. The rule of the Peshwas : Balaji Viswanath, Baji Rao I and Balaji Baji Rao.

2. *The coming of the Europeans* : The Portuguese in Goa : Trade and possesions. The French and the Dutch : Trade and settlement. The English East India Company : Trade and settlements.

3. *The growth of British rule in India* : The work of Robert Clive, Warren Hastings, Lord Cornwallis, Lord Wellesley and Lord Dalhousie.

4. *The Revolt of 1857* : Causes of the revolt—military, religious, economic and political—the main events of the revolt—results of the revolt.

5. *Causes of the rise of nationalism* : the Indian National Congress —objectives and struggles—the contribution of Surendra Nath Banerjee, Dadabhai Nauroji, Bal Gangadhar Tilak, Gopal Krishna Gokhale, Mahatma Gandhi, Subhash Chandra Bose, Jawaharlal Nehru, Sir Sayid Ahmad Khan,—their services and sacrifices—The Civil Disobedience Movement—the 'Quit India' Movement.

6. *Independence and after* : Negotiations for independence—August 15, 1947—partition of India—the integration of the Indian States—Pakistan and Kashmir—the Chinese aggression in 1962—the Pakistan aggression in 1965.

## SECTION C

### Modern World History

*The French Revolution* : Causes of the revolution—The National Assembly 1789—The Convention 1792—Napoleon : wars and conquests—the Continental System—Waterloo—The Congress of Vienna—The industrial revolution in England.

2. *New nation of the 19th Century* :
(a) United States of America : Independence from Britain—development and expansion into the United States of America

—causes of the Civil War and results.

(b) *Italy and Germany* Formation and unification of Italy,—Prussia and the formation of the German nation.

3. *The First World War* : The causes of the First World War in Europe—The Triple Alliance and the Triple Entente. The course of the war from 1914 to 1918—the entry of Japan and the United States of America into the war Results of the war : the peace settlement—re-organization of the states of Europe—the League of Nations.

4. (a) *Communist revolution in Russia* : Russia at the beginning of the 20th century—Lenin : establishment of the Communist Government in Russia—Stalin : expansion and creation of the Union of Soviet Socialist Republics—economic re-organization.

(b) *The emergence of Japan and China* : Sun-Yat-Sen : the establishment of the Chinese Republic—Japan and China between the two world wars

5. *New political creeds* : Mussolini and the Fascist Movement in Italy. Hitler and the national Socialist Movement in Germany —expansionist policies of Hitler—negotiations with France and Britain.

6. *The Second World War* : The immediate cause of the war—the course of the war in Europe up to the end of 1940—the effects of the German attack on Russia—entry of Japan and the United States of America into the war—the invasion of Europe.

7. *The United Nations and the cold war* : Formation of the United Nations—Main organs of the United Nations—The causes and the meaning of the cold war—Emergence of the non-aligned block—the part played by the United Nations in maintaining peace.

8. (a) *The Far East* : the establishment of Communism in China —the Korean war—Indo-China-Vietnam.

(b) *West Asia* : creation of Israel—the Palestinian problem—emergence of the Arab world.

**Paper 2 : Geography** (*Two hours*)

**Objectives :**

1. To appreciate the casual relationships of natural phenomena.
2. To understand how physical environment is in part responsible for similarities and difference in patterns of living.
3. To understand how physical environment affects man's way of living and how man modifies his physical environment to suit his needs.
4. To appreciate the problems of India which result from various geographical factors.

Candidates will be expected to make the fullest use of sketch maps, diagrams, graphs and charts in their answers. Questions set may require answers involving the interpretation of photographs of geographical interest.

**There will be** *one* **paper of** *two hours*. **The paper will be divided into** *three* **sections. Candidates will be required to attempt** *seven* **questions :** *Question 1* (*compulsory*) **on** *Map Study* **from** *Section A* , *three* **questions from** *Section B* : **and** *three* **questions from** *Section C*.

## SECTION A

*Map Study* : Interpretation of Survey Maps.

Concept of contour—Symbols - recognition of simple land forms—finding the height—meaning of scale and its representation—measuring distances—grid reference—drainage : identification and description of the features of a river valley—means of transport in relation to relief—settlements : their growth in relation to their environment and position—inferring the occupation of the people—distribution of natural vegetation.

## SECTION B

*Principles of Geography and World Studies*

*A. Principles of Geography* :

(*a*) *Astronomical* :

(i) Elementary study of the major planets of the solar system (Mercury, Venus, Mars, Jupiter, Saturn, Neptune and Uranus)

(ii) Shape of the Earth : appearance and reality.

(iii) Position of the globe : concept of latitude and longitude ; great circle routes.

(iv) Movements of the earth and their effects.

Rotation : day and night—relation between longitude and time —local and standard time.

Revolution : seasons—variation of length of day and night.

(*b*) *The atmosphere* :

(i) Difference between weather and climate ;

(ii) Elements of weather and climate ;

—*Temperature* : Factors affecting the temperature of a place : latitude, altitude, distance from the sea, ocean currents—isotherms.

—*Pressure* : Simple explanation of the pressure belts—shifting of the pressure belts—formation of cyclonic and anti-cyclonic weather features—prevailing winds—land and sea breezes—monsoons—isobars.

—*Rainfall*: Relief, cyclones, convection—isohyets.

(*c*) *The lithosphere* :

(i) The earth's crust : formation and examples of igneous, sedimentary and metamorphic rocks—volcanoes ; their cause and effects—earthquakes ; their causes and effects —areas affected by volcanoes and earthquakes.

(ii) Meaning of weathering ; mechanical and chemical weathering—soil formation.

(iii) Permeable and impermeable rocks—water table—wells—springs.

(iv) Agents of denudation :

—underground water—limestone feature :

—erosion by running water : rivers (gorges and canyons, rapids and waterfalls, ox-bow lakes, deltas).

—erosion by ice : glaciers and their formation—moraines—hanging valleys.

—erosion by wind : sand dunes.

—erosion by the sea : effects of wave action—cliffs—capes—stacks.

*B. World Studies* :

(*a*) A brief introduction to the following natural regions (an idea of their location, temperature, rainfall and vegetation) which leads to the knowledge of man in his natural environment, man in

his everyday aspects of life such as food, clothing, tools, housing and transport ; activities in different seasons of the year ; products their marketing and use. The following sample studies taken from the major natural regions should be studied :

(i) *Equatorial forests* : rubber cultivation in Malaysia ; cocoa (cacao) in Ghana.

(ii) *Tropical grassland* : (Savanna) : The Masai (cattle pastoralists) of Tanzania.

(iii) *Mediterranean lands* : orchard farming in the Mediterranean lands of Western Europe (Spain, Portugal, France, Italy) and California.

(iv) *Hot deserts* : the dwellers of the Sahara including those of the Nile Valley.

(v) *Temperate grasslands* : Prairies (Canada) and the Steppes.

(vi) *Coniferous forests* : lumbering and trapping in Canada.

(vii) *Tundra* : its dwellers.

(b) A question will be set on an outline map of the world. Candidates should be able to locate the following on the map : the major natural regions given above : the oceans, important seas, continents, principal countries, great rivers and mountain systems, areas of dense and sparse populations, chief trade routes, main exports, important cities.

## SECTION C

*A. General Introduction to Asia* :

1. Chief Physical features **(to be examined through maps only) :**

(i) Mountains : Urals, Altai, Yablonoi, Khingan, Stanovoi, Caucasus; Armenian Highlands, Elburz, Zagros, Hindu Kush, Pamirs, Tian Shan, Kuluns, Himalayas, Yomas.

(ii) Plains and plateaus : Northern Low Lands, Mongolian Plateau, Plateaus of Arabia and Iran, Tarim Basin, Tibet, Indo-Gangetic plain, Deccan, Shan Plateau, Korat Plateau, Great North China plain.

(iii) Rivers and seas : Ob, Yenisei, Lena, Euphrates, Tigris, Indus, Ganga, Irrawaddy, Mekong, Sikiang, Yangtse, Hwang Ho, Amur, Black Sea, Caspian Sea, Sea of Aral,

Sea of Okhotsk, Sea of Japan, Yellow Sea, South China Sea, Arabian Sea.

(iv) Main countries of the continent; particularly S.E. Asian Archipelago.

2. Climatic and vegetation belts (**to be examined through maps only**) : Arctic ; Cold Temperate ; Temperate Desert ; Hot Desert ; Tropical Monsoon ; Equatorial.

*B. Geography of the Indian Sub-continent i.e. India, Pakistan, Bangla Desh.*

1. *The following will be examined* **through maps only :**

(a) Physical Features :

(i) The Himalayas, Pamirs, Hindu Kush, Sulaiman, Karakoram, the Deccan Plateau, Western Ghats, Eastern Ghats, the Aravalli Hills, Satpura and Mahadeo Hills, Nilgiris, the Thar Desert, Rann of Kutch ; Chief passes : Khyber, Bolan.

(ii) Indus and tributaries, Ganga, Gomati, Gandak, Kosi, Yamuna, Gagra, Chambal, Son, Damodar, Brahmaputra, Mahanadi, Narmada, Tapti, Godavari, Krishna.

(b) Distribution of agricultural products and minerals.

(c) Distribution of population.

(d) Chief cities.

2. Area.

Approximate area in sq. km. ($km^2$) and hectares ; lines of longitude 60°E and 97°E (Note the position of $82\frac{1}{2}$°E in relation to time at Greenwich) ; parallels of latitude 8°N and 37°N (Note the position of the Tropic of Cancer).

3. Climate :

(i) the cold season ; (December-March) ;

(ii) the hot season : (March-May) ;

(iii) the rainy season : (June to September)—special reference to South West Monsoon).

(iv) Retreating monsoon season : (October-November).

4. Natural vegetation.
   (i) The tropical evergreen rain forests.
   (ii) Deciduous monsoon forests.
   (iii) Thorn and scrub.
   (iv) Desert vegetation.

   *Note* : *The relationship between relief and climate, particularly rain in determining natural vegetation ; modification by man.*

5. Soils : red soils of the crystalline tracks—southern Deccan ; black cotton or *regur* soils, over the Deccan lavas ; alluvial soils, characteristics of the northern plains ; laterite soils.

*C. A Study of India* :

1. *Agriculture* : Distribution and methods of farming of rice, wheat, millets and pulses ; sugar-cane, oil-seeds ; cotton, jute, tobacco, tea, coffee, rubber.

2. *Industry* : *Textile ; jute ; sugar ; iron and steel ; cement ; chemicals.
   *(Reference should be made to cottage industries).

3. *Irrigation and power control* :
   Canals, tanks, wells, multipurpose projects : Bhakra Nangal, Damodar Valley, Hirakud, Tungabhadra, Rihand Valley.

## 4. (a) MATHEMATICS Alternative A

*May not be taken with Mathematics Alternative* **B**

**Objectives**

The main aims of the syllabus are to help candidates to sense the need and value of numbers in their everyday lives, to foster confidence and skill in the handling of practical situations involving number, to develop the candidates' arithmetical ideas, and to lay a foundation in experience and understanding for their future life.

**Papers**

There will be *two* papers of *two and a half hours each.* Each paper may contain questions on any part of the syllabus, and the solution of any question may require knowledge of more than one branch of the syllabus.

*Each* paper will be divided into *two* sections.

**Section A** will consist of compulsory elementary questions.

**Section B** will consist of more difficult questions and candidates will be required to attempt 6 out of 10 questions.

1. **Language of sets**
   (1) Sets : notations, kinds, the cardinal number of a finite set, subsets, power set, operations on sets and laws which govern them.
   (2) Venn diagrams : their use in logical problems.
2. **Systems of Equations and their graphical representation.**
   (1) Framing of formulae—generalisation of simple rules. The formula and change of subject of formula (simple examples only). Substitution.
   (2) Simple algebraic equations : Simple equations of the first degree in one unknown and problems on the same. Simultaneous equations of the first degree in two unknowns and simple problems involving the same.
   (3) Linear graphs of the form $y = mx + c$ where $c$ may be zero.
   (4) Graphical solution of linear simultaneous equations.
3. **Quadratic Polynomials and Quadratic Equations.**
   (1) Fundamental operations : addition and subtraction—like and unlike terms. Multiplication and division of a polynomial by a monomial or trinomial.

(2) Quadratic equations and their solution by the factor method and simple problems on the same.

(3) Expansion of $(a \pm b)^2$, $(x \pm a)$ $(x \pm b)$, $(a \pm b \pm c)^2$.

(4) Factors : Grouping, trinomials of the form $(x^2 \pm bx \pm c)$ and $(ax^2 \pm bx \pm c)$ ; simple examples of difference of two squares.

**4. Logarithms.**

(1) Logarithms to the base 10, characteristic and mantissa (*four figure* tables only to be used).

(2) The three laws : (i) $\log AB = \log A + \log B$
(ii) $\log A/B = \log A - \log B$ (iii) $\log A^n = +n \log A$

**5. Problems.**

(1) On percentages, (2) on profit and loss, (3) on shares and dividends, (4) on Simple Interest and Compound Interest, (5) on the Unitary method and its application.

**6. Collection and tabulation of data, graphical representation, calculation of mean.**

**7. Geometry**

(1) *Angles at a point*

(a) If two straight lines intersect, the adjacent angles are supplementary and the vertically opposite angles are equal.

(b) If two angles having a common arm are supplementary the other arms lie in a straight line.

(c) Constructions :

(i) To construct an angle equal to a given angle.

(ii) Construction of angles of 60°, 30°, 45°, 90°, etc.

(iii) Bisection of a line segment.

(iv) Bisection of an angle.

(2) *Parallel lines*

(a) If a straight line cuts two parallel straight lines, the alternate angles are equal, the corresponding angles are equal, and the internal angles on the same side of the straight line are supplementary.

(b) The converse of (a)

(c) Constructions :

(i) Through a given point to draw a line parallel to a given straight line.

(ii) Construction of perpendiculars to a line from a point in it and outside it.

(3) *Triangles*

(a) The sum of a the angles of a triangle is equal to two right angles.

(b) If one side of a triangle is produced, the exterior angle formed is equal to the sum of the interior opposite angles.

(c) Congruency of triangles : the following four cases of the congruence of triangles should be discovered through constructions and apparatus, by performing actual applications of cut out triangles together, and seeing logically why they must coincide :

*(*i*) *two sides and the included angle,*

*(*ii*) *one side and any two angles,*

*(*iii*) *three sides,*

*(*iv*) *hypotenuse and one side.*

(d) If two sides of a triangle are equal, the angles opposite to them are equal.

(e) If two angles of a triangle are equal, the sides opposite to them are equal.

*(*f*) *If two sides of a triangle are unequal, the greater side has the greater angle opposite it; and the converse.*

*(*g*) *Of all the straight lines that can be drawn to a given straight line from a given point outside it the perpendicular is the shortest.*

(h) Construction of triangles from given data.

(4) *Rectilinear Figures*

(a) In a polygon of $n$ sides, the sum of the interior angles is equal to $(2n - 4)$ right angles.

(b) The opposite sides and angles of a parallelogram are equal each diagonal bisects the parallelogram and the diagonals bisect each other.

(c) If a pair of opposite sides of a quadrilateral are equal and parallel, it is a parallelogram.

(d) Construction of parallelograms, squares, rectangles and regular hexagons from given data.

(5) *Loci*

(a) The locus of a point which is equidistant from two fixed points is the perpendicular bisector of the straight line joining the two fixed points.

(b) The locus of a point which is equidistant from two intersecting straight lines consists of a pair of straight lines which bisect the angles between the two given lines.

(6) *Areas*

(a) Parallelograms on the same base and between the same parallels are equal in area.

(b) The area of a parallelogram is equal to the area of a rectangle on the same base and of the same altitude.

(c) The area of a triangle is equal to one half the area of a parallelogram on the same base and between the same parallels.

*(d) *In a right-angled triangle, the square described on the hypotenuse is equal to the sum of the squares described on the sides containing the right angle.*

(7) *Similar Triangles*

(a) Two triangles are similar if they have

(i) either a pair of corresponding angles congruent and the sides including them proportional ;

(ii) or two pairs of corresponding angles congruent ;

(iii) or three pairs of corresponding sides proportional.

(b) The straight line drawn through the mid-point of one side of a triangle parallel to another side bisects the third side.

(c) The straight line joining the middle points or two sides of a triangle is parallel to the third side, and equal to half of it.

(d) If there are three or more parallel straight lines, and the intercepts on any straight line that cuts them are equal, the corresponding intercepts on any other straight line that cuts them are also equal.

(e) Division of straight lines into a given number of equal parts or into parts in any given proportion.

(8) *Circles*

(a) A straight line drawn from the centre of a circle to bisect a chord which is not a diameter is at right angles to the chord ; conversely, the perpendicular to a chord from the centre bisects the chord.

*(b) *There is one circle, and only one, which passes through three given points not in a straight line.*

(c) Equal chords of a circle are equidistant from the centre ; and the converse.

(d) The tangent at any point of a circle and the radius through the point are perpendicular to each other.

(e) If two circles touch, the point of contact lies on the straight line through the centre.

(f) The angle which an arc of a circle subtends at the centre is double that which it subtends at any point on the remaining part of the circumference.

(g) Angles in the same segment of a circle are equal.

(h) The angle in a semicircle is a right angle.

(i) The opposite angles of a quadrilateral inscribed in a circle are supplementary.

(j) In equal circles, (or, in the same circle)

(i) if two arcs subtend equal angles at the centre, they are equal ;

*(ii) *conversely, if two arcs are equal, they subtend equal angles at the centre.*

*(k) *In equal circles (or, in the same circle)*

*(i) if two chords are equal they cut off equal arcs ;*

*(ii) conversely, if two arcs are equal, the chords of the arcs are equal.*

(l) Constructions :

(i) Construction of tangents to a circle. Construction of tangent(s) to two circles (direct and transverse).

(ii) Construction of circumscribed, inscribed circles of a triangle. Circumcentre, incentre.

(iii) Simple cases of construction of circles from sufficient data.

(iv) Construction of regular figures of 3, 4 and 6 sides in or about a given circle.

(9) *Areas, volumes, etc.*

(a) Areas of triangles, parallelograms, trapeziums, rectangles, squares, circles, and simple problems.

(b) Mensuration of cuboids, circle and cylinder.

(c) Volume of rectangular solids, cylinders, cones, spheres.

(d) Scale drawing—areas.

(e) Trigonometrical ratios of acute angles, especially 30°, 45° and 60° and simple 2-dimensional problems on heights and distances.

(**Proofs are not required but problems based on these may be asked*).

## 4. (b) MATHEMATICS Alternative B
## MODERN

*May not be taken with Mathematics Alternative* **A**

### Objectives

The aim of the syllabus may be expressed as being more concerned with principles than with processes, more concerned with ability to apply basic calculations than with ability to carry out a great variety of computations. The emphasis is on the understanding of basic mathematical concepts and their applications than on skills in performing lengthy manipulations. Importance will be attached to clear expression and careful reasoning and to the correct use of symbols.

### Papers

There will be *two* papers of *two and a half hours* each. Each paper may contain questions on any part of the syllabus, and the solution of any question may require knowledge of more than one branch of the syllabus.

*Each* paper will be divided into *two* sections.

**Section A** will consist of compulsory elementary questions.

**Section B** will consist of more difficult questions and candidates will be required to attempt 6 out of 10 questions.

| SYLLABUS | NOTES |
|---|---|
| **Sets and Mappings** | |
| The notation and idea of a set.<br>Power set.<br>Operations on sets.<br>Set relations. | Candidates will be expected to be familiar with the terms and symbols connected with sets, namely :<br>(a) denoting sets by capital letters or braces, and elements by small letters,<br>(b) describing sets either by listing the elements or by definitions,<br>(c) using the following symbols :<br>(i) General : $\in$, $\notin$, $\mathcal{E}$, $n(A)$, $\phi$, $\{\ \}$, $S_A$<br>(ii) Operational : $\cup$, $\cap$, $A'$, $A-B$<br>(iii) Relation : $=$, $\neq$, $\leftrightarrow$, $\leftarrow/\rightarrow$, $\in$, $\ni$, $\not\subset$, $\not\ni$<br>(iv) Numbers : $N$, $W$, $I$ *or* $Z$, $R$. |

| | |
|---|---|
| Laws of sets. | Laws which govern set operations to be verified by the use of Venn-diagrams. (Formal proofs are not necessary). |
| Venn-diagrams. | As illustrations, and their use in proving laws of sets and in simple logical problems. |
| Set of ordered pairs | Notation : $A \times B = \{(x, y) : x \in A, y \in B\}$ |
| The cartesian product. | Where $A$ and $B$ are non-empty sets. |
| Relation | As a set of ordered pairs and sub-set of a cartesian product $A \times B$. |
| domain and range types. | Reflective, symmetric, transitive, one-one, one-many, many-one, many-many, onto, into. |
| Function | As a relation where no two of its ordered pair have the same first element. |
| composite function inverse function. | Notation : $f: x \to f(x)$ ; $f(x) = y$ ; $fg$ ; $f_0 g$. (The knowledge of special functions like odd even, step, trigo, log, etc. will not be required. |

**Linear Equations**

| | |
|---|---|
| Solution of simple linear equations in one variable. | |
| Simple problems on them. | |
| Solution of pairs of simultaneous linear equations in two variables. | |

**Graphical Representation of Linear Equations, Inequations and Quadratic Equations.**

| | |
|---|---|
| Rectangular cartesian co-ordinates in a plane. | |
| The distance formula | Including the mid-point formula. |
| The section formula. (Internal section only) | Other polygons to be excluded. |
| Area of a triangle. | |
| The Line : | |
| Slope (inclination). | Relation between slopes of parallel lines. |
| Slope of line joining the given points | Relation between slopes of lines perpendicular to each other. |

Equation of a line :

Slope intercept from. $y = mx + c$

Graphical representation of a simple linear equation in two variables.

Graphical representation and solution of a pair of simultaneous equations in two variables.

Graphical representation of linear inequations in two variables.

In representing inequations graphically candidates should use the following conventions :

(i) required regions should be shaded,

(ii) boundary lines of the required regions should be broken for strict inequality and should be solid when equality is included.

(Problem——linear programming——on linear inequations will not be asked)

Graphical representation of quadratic functions.

Graph of $y = ax^2 + bx + c$ where $a, b, c, \in z$ and $x, y \in R$; using the graph to estimate the root of $ax^2 + bx + c = 0$, provided the roots are real, and to find the lowest and highest point of the graph. Quadratic inequations are excluded.

**Quadratic Polynomials and Quadratic Equations**

Factors of the expression in the form :
$ax^2 \pm bx \pm c$
$a^2 - b^2$
$a^4 + a^2b^2 + b^4$

Candidates will be expected to know the fundamental operations in algebra, directed numbers and absolute value. (Direct questions will not be asked on absolute value).

Expression involving simple algebraic fractions.

Addition, subtraction and simplification of fractions involving monomial and binomial factors only.

Solution of quadratic equations.

By factors and use of formula.

Simple problems on them.

**Commercial Arithmetic**

| | |
|---|---|
| Ratio and proportion.<br>direct and inverse proportions<br>proportional parts<br>the unitary method<br>and their applications. | Candidates will be expected to have a knowledge of the fundamental operations in numbers, fractions, decimals, prime numbers, common factors, common multiples, approximation, significant figures etc. |
| Percentage | |
| Profit and loss. | |
| Discount. | |
| Shares and dividends. | Simple problems only. |
| Simple and compound interest. | Use of compound interest tables will be required. (Calculation of rate and time under compound interest will not be required). |
| Investment and loans in banks<br>payment in equal intalment buying. | Including calculation of equivalent interest rate. |
| Hire Purchase. | |

**Matrices**

Informational matrices of any shape. Their addition and subtraction where appropriate.

Scalar multiple of a matrix.

Multiplication of $2 \times 2$ matrices.

Algebra of $2 \times 2$ matrices including the identity and the zero matrix.

Inverse of a non-singular $2 \times 2$ matrix. The use of matrices in solving a pair of linear simultaneous equations in two variables.

**Permutations, Combinations and the Binomial Theorem**

| | |
|---|---|
| The Fundamental principle of counting. | If one thing can be done in $m$ different ways, and when it is done in any one of these ways, a second thing can be done in $n$ different ways, then the two things in succession can be done in $mn$ different ways. |
| Factorial notation. | $n! = 1.2.3.4.....(n-1).n$<br>$= n.(n-1).....4.3.2.1.$<br>$= n.(n-1)!$ |
| Permutation of $n$ different things taken $r$ at a time $(r \leqslant n)$. | ${}^nP_r = \frac{n!}{(n-1)!}$ |
| Combination of $n$ different things taken $r$ at a time. | ${}^nC_r = \frac{n!}{(n-r)!\ r!}$ |
| The relations :<br>(i) ${}^nP_r = r\ !\ {}^nC_r$<br>(ii) ${}^nC_r = {}^nC_{n-r}$ | Very elementary problems which require direct applications of ${}^nC_r$ and ${}^nP_r$ (without repetition, that is, all the objects in the $n$ objects are different) only will be asked. (Proving identities involving permutations and combinations will not be required nor will problems be asked which involve restricted permutations/combinations, e.g. arranging different objects around a circle, etc.) |
| Binomial theorem for expanding $(a \pm x)^n$ where $n \leqslant 6, n \in W$. | Use of Paschal's triangle will be expected.<br>The general (rth) term $=$<br>$(-1)^{r-1} \frac{n(n-1)\ (n-2).\ .\ .\ .(n-r+1)}{(r-1)\ !}\ a^{n-r+1}\ .\ x^{r-1}$<br>(Questions on calculation of the middle terms will not be asked) |

**Indices and Logarithms**

| | |
|---|---|
| Indices and laws of Indices. | Including integral, fractional, positive, negative, and zero indices. Statements and simple applications only. |
| Logarithms to the base 10. | Four figure tables only to be used. |

| | |
|---|---|
| Laws of Logarithms : | $\log AB = \log A + \log B$<br>$\log A/B = \log A - \log B$<br>$\log A^n = n \log A$<br>(Proofs of the laws will not be required). |

**Mensuration**

| | |
|---|---|
| Areas and perimeter of triangles, parallelograms, rectangles, squares, trapeziums, circles. | Including the areas and perimeters of such figures as can be split up into these. |
| Simple problems on them. | Problems on areas of paths inside or outside a rectangle or a circle, and problems involving intersecting paths may be asked. |
| Mensuration of cuboids, cylinders, spheres and right circular cones. | |

**Statistics**

| | |
|---|---|
| Tabulation of raw data. | |
| Graphical representation of numerical data. | Bar charts, frequency polygon/curve, pie chart, histogram, cumulative frequency curve (ogive). |
| Averages :<br>mean, median, mode quartiles, deciles, percentiles. | Of grouped and ungrouped data.<br>(Assumed mean may not be used while calculating mean)<br>Candidates will be expected to find the median and quartiles both by formula and from the graph ; the mode, deciles and percentiles are to be estimated from the graph and use of formula to calculate them will not be required. The true mode should be estimated from the histogram. |
| Dispersion :<br>Interquartile range.<br>Mean deviation from mean.<br>Standard deviation and variance. | |

**Trigonometry**

| | |
|---|---|
| The sine cosine, and tangent of an acute angle. | Knowledge will not be required of cotangent, secant and cosecant ratios. |
| Trigonometric ratios of the following angles : 0°, 30°, 45°, 60°, 90° | Tangent of 90° as not defined. |
| Solution of right angled triangles. | |
| Simple two-dimensional problems on heights and distances. | Four figure trigonometrical tables only to be used. Use of logarithms of trigonometrical functions are not expected.<br>Direct applications only of trigonometrical ratios involving the sine, cosine and tangent of acute angles. |

**Geometry**

| | |
|---|---|
| Congruence transformation | Reflection about a line.<br>Translation and rotation. |
| Line and rotational symmetry in two dimensions. | (Conclusion—postulates—based on congruence transformation and symmetry may be used in the solution of geometrical problems). |
| Properties of angles at a point. | (a) If two straight lines intersect, the adjacent angles are supplementary and vertically opposite are equal.<br>(b) If two angles having a common arm are supplementary the other two arms lie in a straight line.<br>(c) If a straight line cuts two parallel straight lines, the alternate angles are equal, the corresponding angles are equal, the internal angles on the same side of the straight line (allied angles) are supplementary.<br>(d) The converse of (c). |
| Angle properties of polygons | (a) The sum of angles of a triangle is equal to two right angles.<br>(b) If one side of a triangle is produced, the exterior angle formed is equal to the sum of the interior opposite angles.<br>(c) In a polygon of $n$-sides, the sum of the interior angles is equal to $(2n - 4)$ right angles.<br>(d) The sum of the exterior angles of any polygon is 4 right angles. |

Congruency of triangles. The following four congruence postulates for triangles :

*(*i*) *two sides and included angles* (*SAS*)

*(*ii*) *One side and two angles* (*ASA, AAS*)

*(*iii*) *three sides* (*SSS*)

*(*iv*) *right angle, hypotenuse and one side* (*RHS*)

The symmetries of regular polygons. The equilateral triangle, the square, the regular pentagon, the regular hexagon, the regular octagon.

The symmetry properties of the isosceles triangle. (a) If two sides of a triangle are equal, the angles opposite to them are equal : and the converse.

*(b) *If two sides of a triangle are unequal, the greater side has the greater angle opposite it ; and converse.*

*(c) *Of all the straight segments that can be drawn to a given straight line from a given point outside it, the perpendicular segment is the shortest.*

the quadrilateral, (d) If a pair of opposite sides of a quadrilateral are equal and parallel, it is a parallelogram.

the parallelogram, (e) The opposite sides of a parallelogram are equal, each diagonal bisects the parallelogram, and each diagonal bisects each other.

the rectangle, (f) The diagonals of a rectangle are equal and bisect each other.

the square, (g) The diagonals of a square bisect each other at right angles and are equal.

the rhombus, (h) The diagonals of a rhombus bisect each other at right angles.

The symmetry properties of the circle (a) The perpendicular bisector of a chord passes through the centre of the circle; and the converse.

(b) Equal chords are equidistant from the centre; and the converse.

(c) A tangent is perpendicular to the radius at the point of contact.

(d) Tangents from an external point are equal.

(e) The angle subtended by an arc at the centre is twice that which it subtends on the remaining part of the circumference ; if the arc is a semicircle, this angle is a right angle.

(f) Angles in the same segment are equal and in opposite segments supplementary.

Size transformation

Enlargement, reduction.

(Conclusions—postulates—based on size transformation may be used in the solution of geometrical problems.)

Similarity of triangles.

The following three similarity postulates for triangles :

*(i) *a pair of corresponding angles congruent and the sides including them proportional.*

*(ii) *two pairs of corresponding angles equal.*

*(iii) *three pairs of corresponding sides proportional*

(a) The straight line drawn through the mid-point of one side of a triangle parallel to another bisects the third side.

(b) The segment joining the mid-points of two sides of a triangle is parallel to and half the third side.

(c) A line drawn parallel to one side of a triangle divides the other two sides proportionately.

(d) If a transversal makes equal intercepts on three or more parallel lines, then any other line cutting them will also make equal intercepts.

(e) A perpendicular drawn from the vertex of the right angle of a right angled triangle divides the triangle into two triangles similar to the original triangle.

(f) The ratio of areas of similar triangles is equal to the ratio of the squares on the corresponding sides.

| | |
|---|---|
| **The Pythagoras Theorem.*** | Applications only |
| Area. | (a) Parallelograms on the same base and between the same parallels are equal in area.<br>(b) The area of a triangle is half that of a parallelogram on the same base and between the same parallels. |
| Loci.<br>Locus as a set of points in a plane. | (a) The locus of a point equidistant from two fixed points is the perpendicular bisector of the segment joining the two points.<br>(b) The locus of a point equidistant from two intersecting lines is the bisector of the angle between them. |
| Constructions : Lines and angles, | (a) bisection of an angle and of a segment<br>(b) lines and angles with given data. |
| Triangles and quadrilaterals, | From given data. |
| Regular polygons, | Up to six sides from given data. |
| Circles, | (a) in and about a triangle.<br>(b) in and about a regular polygon up to six sides.<br>(c) Common tangents to two circles. |
| Similarity, | Division of a segment into equal or proportional parts. |
| Symmetry. | Reflection in a line. |

*(*Proofs are not required, but problems based on these may be asked).*

## RECOMMENDATIONS FOR BOTH ALTERNATIVES

**SI units, signs, symbols and abbreviations.**

(1) *Agreed conventions.*

(a) Units may be written in full or using the agreed symbols, but no other abbreviation may be used.

(b) The letter 's' is never added to symbols to indicate the plural form.

(c) A full stop is not written after symbols for units unless it occurs at the end of a sentence.

(d) When unit symbols are combined as a quotient. e.g. metre per second, it is recommended that they be written as m/s, or better still as $m\ s^{-1}$.

(e) Three decimal signs are in common international use, the full point, the mid-point and the comma. Since the full point is sometimes used for multiplication and the comma, for spacing digits in large numbers, we shall be on the safe side if we use the mid-point for decimals.

(2) *Names and Symbols.*

(a) *In general*

| | | | |
|---|---|---|---|
| implies that | $\Rightarrow$ | logically equivalent to | $\Leftrightarrow$ |
| identically equal to | $\equiv$ | approximately equal to | $\approx$ |

(b) *In set language*

| | | | |
|---|---|---|---|
| belongs to | $\in$ | does not belong to | $\notin$ |
| is equivalent to | $\leftrightarrow$ | is not equivalent to | $\leftarrow\!\!\!/\!\!\!\rightarrow$ |
| union | $\cup$ | intersection | $\cap$ |
| contains | $\supset$ | is contained in | $\subset$ |
| universal set | $\xi$ | the empty set | $\phi$ |
| natural (counting) numbers | $N$ | whole numbers | $W$ |
| integers | $Z$ | real numbers | $R$ |

(c) *In measures*

| | | | |
|---|---|---|---|
| kilometre | km | metre | m |
| centimetre | cm | millimetre | mm |
| kilogram | kg | gram | g |
| litre | l | centilitre | cl |
| square kilometre | $km^2$ | square metre | $m^2$ |
| square centimetre | $cm^2$ | hectare | ha |
| cubic metre | $m^3$ | cubic centimetre | $cm^3$ |
| kilometres per hour | km/h | metres per second | m/s |

## 5. (a) SCIENCE—Alternative A

*May not be taken with Science Alternative B*

The syllabus is not intended to be used as a teaching syllabus. It forms a framework within or round which the teacher's own development of the subject may be fitted. The order of treatment may depend on local considerations, such as the situation of the School in relation to industry and natural regions, the equipment in the School and the teacher's own predilections. The syllabus inevitably covers a wide range of subject matter; although it does not take the candidate very far in any branch of sciences covered it is considered, nevertheless, that it provides a background of scientific knowledge for the citizen.

**Theory :**

There will be *three* papers *each* of *one hour and a half.* Each paper will be divided into *two* sections : Section A and Section B.

**Section A** will consist of structured questions and candidates will be required to attempt *all* questions.

**Section B** will consist of short answer questions in which a choice will be given.

**Practical** : Physics (1½ hours).
Chemistry (1½ hours).
Biology (1½ hours).

| SYLLABUS | NOTES |
|---|---|

### Paper 1

*(One hour and a half)*

**1. The Universe**

| | | |
|---|---|---|
| (*a*) | General | |
| | Astronomical distance | Meaning of light year and reason for use. |
| | Constellations | Recognise Great Bear (Plough), Orion and Cassiopoeia. |
| (*b*) | The Solar System | |
| | Sun | The sun as a star. Size, shape and distribution of galaxies. |
| | Planets | Names and relative position. |
| (*c*) | Atmosphere | |
| | Air | Experiments to demonstrate its existence, such as the collapsing can and Magdeburg hemispheres experiments etc. |
| | Air pressure | Use of mercury barometer ; centimetres of mercury. Use of barometer as altimeter. |

| | | |
|---|---|---|
| | Constituents | Percentage composition. Simple analyses e.g. phosphorus in bell jar, heating metals such as copper or mercury in air. |

**2. Energy**

| | | |
|---|---|---|
| (*a*) | Forms of energy and their inter-conversion. | Heat ; light ; kinetic ; potential ; electric. Sun as major source of energy. Photo-synthesis. Fossil fuels. |
| (*b*) | Heat | Conduction, convection and radiation. Dewar flask and house insulation. |
| | Temperature | Thermometers, mercury and alcohol as thermometric liquids. Celsius scale. |
| (*c*) | Light | |
| | Reflection | Plane mirror. Lateral inversion. |
| | Refraction | At glass/air and water/air interfaces. Converging and diverging lenses. Prism. Spectrum. |
| (*d*) | Magnetism | |
| | Simple Magnets | Bar magnets. Attraction and repulsion of poles. Making magnets ; stroking and solenoid. |
| | Compass and the Earth's Magnetism | 16 points of compass. North and South Magnetic poles ; non-coincidence with geographic poles. Changing magnetic declination. |
| (*e*) | Electricity | |
| | Sources | Dry battery ; lead/acid accumulator ; dynamo. No details of chemical changes in batteries required. Simple ideas of electro-magnetic induction. |
| | Effects | *Magnetic* : Solenoid and electro-magnet. *Chemical* : electrolysis of acidified water and electrolysis of copper sulphate with copper electrodes. *Heating and lighting* : resistance wire ; electric light bulbs and electric fires. |
| | Household applications. | Fuses ; earthing ; colour coding of wires ; rating of circuits (power and lighting) ; circuits in parallel and series ; an understanding of amps, volts and watts. Costing of electricity. |

| | | |
|---|---|---|
| (*f*) Sound | | |
| | Vibration | Necessity for a medium. |
| | Speed | Different in different media. Compared with the speed of light ; timing of sound waves (as an experiment, and also in comparison of thunder and lightning). |
| | Echo sounding | Use by bats ; dolphins ; trawlermen. |

**Paper 2**

(*One hour and a half*)

| | | |
|---|---|---|
| **1. Matter** | | |
| | (*a*) States of matter | Solids, liquids and gases. Particles and simple kinetic theory treated qualitatively. |
| | (*b*) Separations. | Filtration and evaporation e.g. pure salt form rock salt.<br>Crystallisation<br>Distillation ; pure water from ink or brine.<br>Dyes : simple chromotography. Fractional distillation : crude oil. |
| | (*c*) Elements, Compounds and mixtures. | Traditional experiment with iron and sulphur. Notion of chemical and physical changes. Notion of metallic and non-metallic elements. Candidates should know the names of at least 20 common metallic elements and 10 non-metallic elements : zinc, iron, copper, lead, aluminium, silver, gold, mercury, tin, magnesium, sodium, calcium, nickel, cobalt, chromium, manganese, platinum. lithium, tungsten, potassium, hydrogen, oxygen. nitrogen, carbon, sulphur, chlorine. iodine, phosphorus, helium, neon. |
| **2. Acids, bases and salts** | | Solution of non-metallic oxides. Sour taste, reaction with magnesium, carbonates, alkalis and indicators. Hydrochloric, sulphuric, acetic, nitric, tartaric and carbonic acids should have been seen and used. Bases : alkali as soluble base ; being a solution of a metallic oxide. Reactions with acids and indicators. Copper oxide. Sodium and calcium hydroxides. Ammonia solution. Salts : copper sulphate, sodium chloride and zinc sulphate preparations. Household and |

| | |
|---|---|
| | industrial uses of salts. The pH scale as measure of acidity/alkalinity by use of universal indicator and pH paper. |
| **3. Metals** | Physical properties governing use of aluminium, copper, lead, iron, tin and zinc. Alloys : brass, solder and steel.<br>Concept of an activity series : potassium, sodium, calcium, zinc, iron, lead and copper. Protection of metals from rust and corrosion. |
| **4. Water** | Preparation. Properties of hydrogen (zinc and dilute sulphuric acid). Simple burning of hydrogen to produce water. Water supply and water cycle. Temporary and permanent hardness of water. Meaning of terms solvent, solute and solution. Water of crystallisation. |
| **5. Oxygen and carbon dioxide** | One laboratory preparation for each of the two gases, properties, uses. Special mention of extinguishers. Dry ice refrigerant. |
| **6. Nitrogen** | Chemical inactivity of nitrogen. Simple nitrogen cycle. Haber process (no details) and fertilisers. |
| **7. Industrial Chemistry** | Preparation of soap, detergents, plastics, cement etc. |

**Paper 3**

*(One hour and a half)*

**1. The Variety of Life**

| | |
|---|---|
| (*a*) Characteristics of Life | Differences between living and non-living things. |
| (*b*) Differences between plants and animals | Major differences. |
| (*c*) Major groups of plants and animals | Knowledge of range of forms in these groups.<br>Plants : flowering and non-flowering.<br>Animals : vertebrates being further divided into five classes. Pupils should know one named example of each major invertebrate phylum or vertebrate class. |

**2. Flowering Plants**

| | |
|---|---|
| Morphology | External features of a simple harbaceous plant. |

| | |
|---|---|
| Stem, root and leaf | Modifications and functions of these. A simple idea of vegetative reproduction. |
| The structure of a bisexual flower | Functions of its various parts. Pollination, fertilization and the development of fruit, and dispersal of fruits and seeds. |
| **3. Flowerless plants** | A brief study of bacteria and mould. |
| Bacteria and Fungi | |
| **4. Plant Physiology** | The process of diffusion and osmosis, the absorption of water and mineral salts |
| Absorption by roots | |
| Conduction by the stem | Rise of water up the xylem vessels and food down the phloem tubes. |
| Transpiration | External conditions affecting water loss—the importance of transpiration to plants. Experiments on transpiration. |
| Photosynthesis | Experiments for the demonstration of photosynthesis |
| Respiration | The nature of the process—experiments for the demonstration of respiration. |
| Germination | Conditions for germination. |
| Soil | Constituents ; physical and chemical properties of soil. |
| **5. Man's place in the animal kingdom** | Dependence of man on other life forms. Simple food chains and food webs. (These may refer to man, or to animals and, plants generally). The effects of man's control of the environment (e.g. in the use of insecticides like DDT.) |
| **6. Simple plants and animals** | A brief study of the life history of amoeba and spirogyra. |
| **7. Human Biology** | |
| (*a*) Respiration | Internal and external. Dangers of smoking. Artificial respiration. Terms to be known : trachea ; bronchus ; bronchioles ; air sacs (alveoli) ; diaphragm ; pleural membrane ; thoracic cavity, thorax. |
| (*b*) Digestion | Foodstuffs : carbohydrates ; fats ; proteins ; vitamins and mineral salts. Enzymes and their action as exhibited by salivary amylase Terms to be known : roughage ; digestion ; ingestion ; egestion ; peristalsis ; assimilation |

| | |
|---|---|
| | and absorption. Alimentary canal ; oesophagus ; stomach ; duodenum ; pyloric sphincter ; small and large intestine ; rectum ; anus ; appendix ; liver ; bile duct ; gall bladder ; pancreas. |
| Teeth | Number, structure and function. |
| (*c*) Circulation | Blood : plasma, red and white cells, their function ; lymph. Difference between arteries and veins. Capillaries. Heart : double circulation and valves. Names of major blood vessels to and from the heart. First aid in case of bleeding. |
| (*d*) Reproduction | The reproductive organs. Fertilization and general outline of nutrition and respiration of the embryo.<br>Note : Details of the cell division and the anatomy of the embryo are not required. |
| (*e*) Excretion | Removal of toxic chemicals from the body. Terms to be known ; kidney ; medulla ; cortex ; ureter ; urethra ; renal artery ; renal vein ; capillary knot and capsule. |
| (*f*) Senses | The five senses. Detailed knowledge of eye and ear only. |
| (*i*) Eye | Recognise and label a diagram of the eye in section. Terms to be known : lens ; muscle ; sclerotic ; conjunctiva ; choroid ; retina ; aqueous fluid ; vitreous jelly ; cornea ; blind spot ; yellow spot ; optic nerve. Rod cells and cone cells ; simple experiments on blind spot and colour vision. |
| (*ii*) Ear | Recognise and label a diagram of the ear in action. Terms to be known ; outer ear ; inner ear ; middle ear ; drum ; hammer ; anvil ; stirrup ; round and oval windows ; cochlea ; auditory nerve ; semi-circular canals. Organ of balance. |
| (*g*) Co-ordination | Brain and spinal column as a unit (no details)<br>Reflex : by-passing brain. Mention of ductless glands and hormones ; specific details only of adrenals and adrenaline. |
| (*h*) Movement | Movement as illustrated by lower arm. Functions of skeleton (names of bones not required) ; support ; protection ; movement. |

**8. Health**

| | | |
|---|---|---|
| (*a*) | Causes of disease | |
| | Bacteria | Types of bacteria. Bacteria control. Three examples of diseases caused by bacteria. |
| | Virus | What is a virus ? Nature of viruses. Three examples of their control. |
| | Parasites. | Two examples of their control. |
| (*b*) | Hygiene | Simple personal hygiene (e.g. cleanliness, clothing etc.) and social conditions affecting this.<br>Disease carriers : flies, rats. |
| (*c*) | Aids to health | An understanding of the use and action of the following : vaccination ; immunisation ; antitoxin ; serum ; antiseptic ; disinfectant ; penicillin ; sulphonamide family of drugs. |
| (*d*) | Health Organisation | Red Cross. WHO : Reasons for its formation. The main current of Health problems in India. |

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## PRACTICAL

### 1. Physics Practical

Candidates will be asked to carry out experiments for which full instructions will be given. The experiments may be based on topics which are not included in the syllabus but in no case will any theoretical knowledge be required. A candidate will be expected to be able to follow simple instructions, to take suitable readings and to present these readings in a systematic form.

The following are examples of topics on which experiments may be based :

(1) Measurements of weight, length, volume, density, timings of oscillations and temperature.

(2) Experiments on moments.

(3) Light experiments requiring plotting of rays of light using pins.

(4) Experiments with lenses.

(5) Electrical experiments involving simple circuits and the measurement of currents and voltages using meters.

## 2. Chemistry Practical

(1) Heat the given (unknown substances), make observations and identify the products.
   (a) Mercuric oxide, red lead
   (b) Copper carbonate, zinc carbonate
   (c) Washing soda, copper sulphate crystals
   (d) Ammonium chloride.

(2) Add dilute sulphuric acid to unknown substances, make observations and identify products.
   (a) a carbonate
   (b) a metal

(3) Action of sodium hydroxide solution on substances, containing the following ions. Identification of the ions.
   $Ca^{2+}$, $Cu^{2+}$, $Fe^{2+}$, $Fe^{3+}$, $Zn^{2+}$, $NH_4^+$.

(4) Supply a solution of dilute acid and alkali. Determine which is acidic and which is basic. Give *two* tests for each.

## 3. Biology Practical

(1) A study of the external parts of a simple herbaceous dicot flowering plant, e.g. *Hibiscus*, *Petunia*, *Vinca*.

(2) A study of the external parts of a monocot plant. e. g. *Maize* or *Wheat*.

(3) A simple morphological study of the parts of a flower.
   (a) Dicot e.g. Shoeflower, *Hibiscus* and *Petunia*.
   (b) Monocot. e.g. Lily.

(4) A study of the structure of a mould fungus (prepared slides may be used).

(5) Simple experiments to show transpiration in plants.
   (a) Weight method
   (b) Cobalt chloride test.

(6) Tests for the presence of starch in leaf.

(7) Tests for simple sugars, fats and proteins in food substances (e.g. rice, beans, butter, egg, wheat etc.)

(8) The candidates should be able to label drawings of the following structures of a mammal.
   (a) structure of the eye
   (b) structure of the heart
   (c) structure of kidneys
   (d) the structure of a tooth
   (e) the bones and muscles in the fore limb of man.

(9) Labelling the diagram of an amoeba and spirogyra.

## 5. (b) SCIENCE—Alternative B

*May not be taken with Science Alternative* **A**

## (PHYSICS, CHEMISTRY, BIOLOGY)

There will be *three written* papers and *three practical* papers as given below :

**Theory :**

**Paper 1** willl be a 1½ *hours* paper and will contain *eight* questions on **Physics.** Candidates will be required to answer Question 1 and *four* others.

**Paper 2** will be a 1½ *hours* paper and will contain *eight* questions on **Chemistry.** Candidates will be required to answer Question 1 and *four* others.

**Paper 3** will be a 1½ *hours* paper and will contain *eight* questions on **Biology.** Candidates will be required to answer Question 1 and *four* others.

**Practical :**

There will be a practical test of 1¼ *hours* in each of Physics, Chemistry and Biology.

*Notes* : The pamphlet 'Notes for Guidance on metrication and use of SI units in question papers' must be consulted.
This pamphlet is available from the Council on payment of Rs. 6.00.

### (i) PHYSICS

**Objectives :**

This syllabus is designed :

1. to provide a course of Physics for understanding.
2. to enable candidates to "learn and discover that there is a living and growing Physics relevant to the modern age in which they live".

*Note* : (a) The emphasis is on experimenting and discussion for understanding.

(b) The empirical approach to a topic is chosen wherever possible.

**There will be a Theory paper of 1½ hours and a Practical paper of 1¼ hours.**

### THEORY

1. The three states of matter.
Evidence for the existence of molecules : Brownian movement, diffusion, evaporation, boiling and melting.
Physical differences between solids, liquids and gases explained in terms of simple kinetic theory.

2. Simple measurements; time, $t$, length, $l$, area, $A$, and volume $v$ or $V$, mass, $m$; density, $\rho$, for a regular solid by measurement and weighing, for an irregular solid by displacement and for liquids by density bottle, for air by a suitable method. Significant figures in computed results.

3. Pressure, $p$ or $P$, in liquids, its dependence on depth and density.

   Transmission of pressure, illustrated by hydraulic brakes and press.

   Air pressure, simple mercury and aneroid barometers.

   Boyle's law, including experimental verification and calculations.

   Principle of Archimedes ; flotation.

   Application to the determination of densities required.

4. Expansion of solids, liquids and gases. Qualitative experiments on the expansion of solids, a liquid and a gas.

   The anomalous expansion of water is included.

   Uses and consequences of expansion, as in riveting, the clock pendulum, the balance wheel, railway lines, thermostats.

   The laboratory thermometer. Fixed points and the Celsius temperature scale, °C. Effect of pressure and dissolved substances on the fixed points. The clinical thermometer.

   A maximum and minimum thermometer (Six's will be accepted).

   Relation between volume and temperature, $\theta$ or $t$, of a gas.

   The idea of zero, °K, of absolute temperature, $T$.

   Reference should be made here to kinetic theory.

5. Heat transfer : Conduction, convection and radiation.

   Experiments to illustrate heat transfer.

   Comparison of radiating powers and absorbing powers of different surfaces is included.

   Applications of a knowledge of methods of heat transfer as in the vacuum flask, ventilation and heat insulation.

6. Quantitative measurement of heat energy, $Q$.

   Simple determination of specific heat capacity, $c$.

   The term 'water equivalent' will not be used.

7. Heat as a form of energy (qualitative treatment). Energy conversion. Latent heat. Cooling by evaporation.

8. Definitions of speed $u$ or $v$ or $w$, velocity, acceleration, $a$ ($g$ under gravity), force, $F$, work, $W$, energy, $E$, and power, $P$, and their units.

   Include graphical representation.

Simple machines (levers and single-string pulley systems) leading to the ideas of mechanical advantage and efficiency.

9. Principle of moments.
Centre of gravity and equilibrium (qualitative only.)
Opportunity should be taken to distinguish between mass, $m$, and weight, $W$.

10. Light : rectilinear propagation.
Reflection of light. The formation of images by plane mirrors and characteristics of images formed by curved mirrors.
Solution of problems by scale drawing only.
A simple determination of the focal length, $f$, of a converging (concave) mirror.

11. Refraction of light, Snell's law, refractive index, $\mu$.
Determination of refractive index and of critical angle, using a transparent block.
Qualitative treatment of real and apparent depth and of total internal reflection. An example of the use of a totally reflecting prism in an optical instrument.

12. The formation of images by converging (convex) and diverging (concave) lenses.
A simple determination of the focal length of a converging lens.
Solution of problems by scale drawing only.
The simple photographic camera.

13. The physics of the human eye. Accommodation, long-sight and short-sight and their correction by spectacles.
No quantitative problems will be set.

14. Refraction through a triangular prism (qualitative).
Spectrum of white light.
Effect of mixing coloured light. Appearance of objects in different coloured light.

15. Wave-motion.
Characteristics of wave-motion : frequency, wavelength, velocity, $V=f\lambda$, amplitude and resonance (illustrated by simple examples).
Light as an electromagnetic wave. Light and infra-red, i.r., radiation as part of the complete electromagnetic spectrum.
Sound as a longitudinal wave in a substance.

16. The relation between colour and wavelength.
The relation between pitch and wavelength, including a qualitative treatment of factors affecting the pitch of a stretched string. Musical notes. Quality of a musical note and its relationship to musical instruments.

17. Echoes. One simple method of determining the velocity of sound, *c*, preferably in free air.

18. Electricity as a source of light and heat energy.
Production of an electric current, *I*, by a simple voltaic cell.
Polarization. The Daniel cell. The Leclanche cell.
The lead-acid accumulator.
Only simple theory, without chemical equations, is required. Care and maintenance, including practical details of charging and discharging, should be described.

19. Properties of magnets.
Magnetic field. The earth's magnetic field.
Magnetization and demagnetization.

20. Magnetic field due to electric current flowing in a straight wire, coil and solenoid.
Electromagnets, including electric bell.

21. Force on conductor in a magnetic field.
Structure of moving coil galvanometer: qualitative treatment of conversion to (*a*) ammeter, (*b*) voltmeter.
Simple d.c. motor.

22. The relationship between the ampere, A, coulomb, C, volt, V, ohm, Ω, watt, W, kilowatt, kW, and kilowatt-hour, kWh, and their practical use as units of measurement.
Fundamental definitions of the ampere and volt are not required.

23. Ohm's law.
Resistors in series and parallel.

24. Electric lamps, iron, etc., including cost of operation.

25. Simple house circuitry ; switches, the ring main. Safety precautions : fuses, earthing.
Reference should be made to the potential hazards associated with high voltages and overheating in current carrying cables.

26. Electromagnetic induction.
Simple a.c. and d.c. generators.
Transformers (qualitative).

27. Concept of electrical charge, $Q$. Coulomb's Law.
Positive and negative charges related to electron movement.
Electrification by friction. Electrostatic induction.
The gold-leaf electroscope and identification of charge.

28. Conductors and insulators, and the link with electron movement.

29. The structure of the atom in terms of protons, neutrons and electrons.
Isotopes.

30. Cathode rays, evidence as being a stream of electrons; their properties leading to qualitative treatment of cathode-ray tube. The diode valve and the principle of its action as a rectifier (qualitative).

31. X-rays (how obtained); uses.

32. Radioactivity, its discovery; $\alpha$ and $\beta$ particles, $\gamma$ rays, their nature.
The idea of 'half-life' is included.
Safety precautions.

33. Nuclear energy; qualitative treatment of the conversion of mass into energy; fission.

*Note* : No numerical problems involving formulae will be set on the following topics: curved mirrors, lenses, laws of a stretched string, resonance, magnetism and Coulomb's law (electrostatics).

## PRACTICAL

Candidates will be asked to carry out experiments for which full instructions will be given. The experiments may be based on topics which are not included in the syllabus but in no case will any theoretical knowledge be required. A candidate will be expected to be able to follow simple instructions, to take suitable readings and to present these readings in a systematic form. He may be required to exhibit his observations graphically.

The following are examples of topics on which experiments may be based :

(1) Measurements of weight, length, volume and density.
(2) Simple experiments involving the timing of oscillations.
(3) Experiments on moments.
(4) Light experiments requiring the plotting of rays of light using pins.
(5) Experiments with lenses.
(6) Electrical experiments involving simple circuits and the measurement of currents and voltages using meters.

## (*ii*) CHEMISTRY

**Objectives :**

The syllabus has been constructed to provide :

1. a study of Chemistry designed "to equip future citizens entering an era of nuclear power and great scientific development"
2. a course complete in itself and excluding topics the relevance of which is only to be found in more advanced study.
3. a course which takes into consideration the relation of Chemistry to other branches of Science.

**There will be a Theory paper of 1½ hours and a Practical paper of 1½ hours.**

### THEORY

1. The effects of heating a representative variety of substances; the interconversion of states of matter (including sublimation), decomposition.

The following substances are useful : ice or wax, $Cu(NO_3)_2$ or $CuCO_3$ ZnO, $I_2$ or $NH_4Cl$, HgO or $PbO_2$, $(NH_4)_2\ Cr_2O_7$,

2. The idea of physical and chemical change. Mixtures and pure substances, compounds and elements : main general characteristics and differences. Separation of mixtures involving use of a solvent, filtration, evaporation and distillation.

3. Air.

Its function in burning ; fraction only used up, new substances formed, changes in mass. Air as a mixture of at least two gases, including a reasonably accurate method for determining the proportion by volume of oxygen ; the presence of carbon dioxide and water vapour, their approximate proportions.

4. Water.

Its physical states and chief physical properties : its use as a solvent. Solutions as 'mixtures' of solids in water. Saturated solutions. Qualitative effect of temperature on solubility, e.g. sodium chloride, potassium nitrate. Crystallization, e.g. copper (II) sulphate, potassium nitrate. Introduction to water of crystallization, (see Section 15). Air dissolved in water; its removal, approximate composition and biological importance. The action of sodium and calcium on cold water ; the action of heated magnesium on steam.

See Section 14.

5. Oxygen.

In air, water and oxides. The preparation and collection of oxygen in the laboratory, e.g. from hydrogen peroxide with

manganese (IV) oxide or by any other suitable method, e.g. heating other higher oxides like $Pb_3O_4$, $PbO_2$.

Refer to density and solubility of oxygen.

The burning of common elements in oxygen, e.g. carbon, sulphur, phosphorus, sodium, calcium, magnesium, iron. Introduction of activity series. Acidic and basic oxides ; acids unusually formed by combinations of oxide of non-metal with water, some basic oxides combine with water to give hydroxides.

See also Section 12.

6. Hydrogen.

Further reactions in which it is formed.

See Section 4.

The action of red-hot iron on steam ; displacement of hydrogen from dilute sulphuric acid or hydrochloric acid by zinc or iron (no reaction with copper). Displacement of $H_2$ from alkalis (NaOH, KOH) by Zn, Al.

Refer to activity series.

The preparation and collection of hydrogen by a standard laboratory method other than electrolysis.

Refer to the density and solubility of hydrogen.

Burning of hydrogen in air or oxygen, water being formed (an oxide of hydrogen) ; reaction with heated copper (II) oxide, leading to idea of oxidation and reduction.

Oxidation and reduction in terms of hydrogen and oxygen addition and removal.

7. Carbon dioxide.

Its formation when charcoal, wood or other organic substance, e.g. ethanol, is burned in air or oxygen ; an oxide of carbon.

Effect of heat on sodium carbonate, calcium carbonate, (chalk), zinc carbonate, copper (II) carbonate.

Carbonates of less active metals give off a gas which affects lime-water leaving the oxide of the metal.

Quicklime, slaked lime, lime-water.

The effect of dilute acids on carbonates and hydrogen carbonates.

The preparation and collection of carbon dioxide by the action of hydrocloric acid on calcium carbonate (marble).

Refer to the density and solubility of carbon dioxide.

The reactions of carbon dioxide with lime-water and sodium hydroxide solution.

An acidic oxide, reacting with (oxides and) hydroxides of some metals forming carbonates. Reference should be made to sodium hydrogen carbonate and calcium hydrogen carbonate. See Section 13 (a).

Its use in refrigeration and fire extinguishers.

8. The law of conservation of mass and of constant composition : Dalton's conception of atoms, as an introduction to modern ideas of atomic structure. Simple calculations based on these laws.

One simple experimental verification of each law. See Section 29 (Physics).

9. Properties of gases.

The behaviour of gases under changes of temperature and pressure. Boyle's law and Charles' law.

Simple relevant calculations. See also Sections 3 and 4 of Physics.

Standard temperature and pressure.

Reduction to s.t.p. required.

10. Avagadro's law. Atoms and molecules.

Refer to the atomicity of hydrogen, oxygen, nitrogen and chlorine.

Relative atomic masses (atomic weights) and relative molecular masses (molecular weights).

Either H=1 or $^{12}C=12$ will be accepted. Values of relative atomic masses may be assumed but it should be appreciated that they are based on both physical and chemical evidence.

Percentage composition and the ratio of number of atoms ; deduction of simple and molecular formulae and valencies. The molar volume of a gas at S.T.P.

The information conveyed by a chemical equation. Simple calculations based on chemical equations, both reacting weights and volumes.

Including reacting masses and volumes of gases but excluding standard, normal and molar solutions.

11. Energy changes in chemical reactions illustrated by the following :

(*a*) heat : given out in many cases, e.g. burning of fuels, combination of iron and sulphur :

(*b*) light : given out, often with heat, e.g. flames :

taken in e.g. photosynthesis and photography.

12. Electrolysis.

Electrolytes and non-electrolytes. Ions. An elementary study of the migration of ions, illustrated by the electrolysis (*a*) of aqueous copper (II) chloride with a copper cathode and a carbon anode, (*b*) of acidified water with platinum electrodes and (*c*) of aqueous copper (II) sulphate with copper electrodes and Pt electrodes. Electron transfer at the electrodes.

The atoms as consisting of a nucleus with associated electrons.

Electron sharing and transfer between atoms. (Electro-valency and co-valency).

Illustrated by a few simple examples. See also Section 16.

Acids, bases and salts as elecrolytes.

See also Section, 5, 6 and 15. Reference should be made to the activity series as indicating the tendency of metals, e.g. Na, Ca, Fe, Cu, to form ions.

13. Further study of the elementary chemistry of some non-metals.

(*a*) Carbon.

Its allotropes : charcoal, graphite, diamond.

Burning in oxygen, giving carbon dioxide. Further study of carbon dioxide.

See Section 7.

Carbonic acid, carbonates and hydrogen carbonates. Temporary hardness of water, permanent hardness caused by soluble calcium salts.

Action of soap, boiling and washing soda and zeolites in softening.

Carbon monoxide, formed by incomplete combustion of carbon or carbon compounds, e.g. exhaust fumes from cars. *One* method of preparing and collecting carbon monoxide. (Preparation of CO from oxalic, formic acids).

Refer to the density, solubility and poisonous nature of carbon monoxide.

Fuels : carbon compounds ; solids, liquid and gaseous ; coal and coke, petroleum, water-gas, producer gas, town gas. Their sources and approximate composition. Combustion of common fuels.

Production and details of composition of coal gas or town gas are not required.

(*b*) Chlorine.

Preparation of hydrogen chloride from sodium chloride : its chief properties.

Refer to the density and solubility of hydrogen chloride.

Preparation and collection of chlorine from (i) oxidation of concentrated hydrochloric acid by $MnO_2$, $PbO_2$, $Pb_3O_4$, (ii) Bleaching powder.

Refer to the density, case of liquefaction, solubility and poisonous nature of chlorine.

Its reactions with burning sodium, hot iron, phosphorus, water, cold and hot sodium hydroxide solutions, potassium iodide solution, hydrogen sulphide solution. The bleaching action of chlorine. Use in water purification.

(*c*) Nitrogen.

Its reaction with hydrogen, including conditions.

See Section 17.

Ammonia : its laboratory preparation from (i) ammonium chloride or any ammonium salt (ii) nitrides like $Mg_3N_2$ and AIN.

Refer to the density and solubility of ammonia.

The burning of ammonia in oxygen : its reactions with hydrogen chloride and with hot copper (II) oxide and chlorine.

See also Section 6.

The catalytic oxidation of ammonia, as the source of nitric acid.

Conditions and reactions only.

Ammonium chloride : its sublimation and its reactions with alkalis and with sulphuric acid. Nitric acid; one laboratory method of preparation from potassium nitrate. Its reaction as an acid, e.g. on carbonates and basic oxides, and as an oxidizing agent e.g. carbon, sulphur, phosphorus (its allotropes and acids.)

Nitrate : formation from nitric acid. The action of heat on the nitrates of potassium, sodium, lead and copper.

Importance of the "fixation" of atmospheric nitrogen. The nitrogen cycle. Fertilisers.

Preparation of oxides of nitrogen. $N_2O$, NO, $NO_2$.

(*d*) Sulphur : its sources. Crystallization from melt and from solution. Burning in air or oxygen ; direct combination with iron and copper.

Formation of sulphur dioxide by burning sulphur and by dilute acid on sodium and other different sulphites. One laboratory method of preparing and collecting sulphur dioxide.

Refer to the density, solubility, ease of liquefaction and poisonous nature of sulphur dioxide.

Reactions of sulphur dioixde with water, sodium hydroxide solution, chlorine. Uses, including (i) manufacture of sulphuric acid, (ii) bleaching and food preserving.

Sulphur trioxide : preparation by oxidation of sulphur dioxide, reaction with water.

Sulphuric acid : its behaviour (i) as an acid, when dilute, (ii) the oxidation of carbon and sulphur and the dehydration of sugar and copper (II) sulphate crystals, when concentrated.

See also Section 17.

14. Further study of sodium, calcium, magnesium, aluminium zinc, iron, lead and copper based on the activity series. Their reactions with air and water (steam.)

Detailed knowledge of these reactions only is required as in Sections 4, 5 and 6. Rusting of iron should be included and treated as slow oxidation with reference only to oxygen and water.

Reactions of zinc, lead and copper with dilute hydrochloric acid and dilute sulphuric acid ;; reduction of the oxides of zinc, iron,

lead and copper with carbon or carbon monoxide, or with hydrogen. The formation, solubility and effect of heat on the hydroxides of these eight metals : amphoteric hydroxides of zinc, aluminium, lead : effect of heat on carbonates and nitrates as in Section 7 and 13 (c).

Reference should be made to methods of extraction of metals such as iron, aluminium, copper and zinc from their ores, namely electolysis for the active metals sodium, magnesium and aluminium, and chemical reduction for the less active metals. See also Section 17 for the extraction of iron.

The chief uses of the metals magnesium, aluminium, zinc, iron, copper, lead.

Simple examples of alloys and the reasons for their use should be given.

15. Acids, bases and salts : ionic compounds, acids producing hydrogen ions, and alkalis hydroxyl ions ; salt formation from acid and alkali, essentially neutralization of hydrogen and hydroxyl ions.

Laboratory methods of preparing salts :

(*a*) Soluble salts by action of acid on

(i) a metal ; zinc sulphate, iron (II) sulphate.

(ii) an oxide, insoluble hydroxide or insoluble carbonate of metals ; copper (II) sulphate.

(iii) a soluble hydroxide or carbonate ; sodium sulphate.

(*b*) insoluble salts by precipitation; calcium carbonate, lead (II) chloride,

(*c*) direct combination ; iron (III) chloride.

Water of crystallization ; deliquescence and efflorescence, illustrated by calcium chloride and sodium carbonate.

See also Section 4.

16. Molecular compounds : difference of structure between ionic and molecular compounds. The structures of hydrogen, water, ammonia, carbon dioxide, methane, ethane, propane, normal and iso-butane.

17. Industrial processes. In the course of the work, the industrial processes for the production of the following should be discussed : producer gas and water-gas ; hydrogen, by the Bosch process ; ammonia by the Haber process ; nitric acid by the catalytic oxidation of ammonia ; sulphuric acid by the contact process ; pig-iron in the blast furnace ; sodium hydroxide by an electrolytic process.

Technical details will not be expected in the examination.

## PRACTICAL

Candidates will be asked to observe the effect of reagents and/or of heat on substances supplied to them. The exercises will be simple and may include the recognition and identification of certain gases and ions listed below : the examiners will not, however, be restricted in their choice to substances containing the listed ions.

*Gases :* hydrogen, oxygen, carbon dioxide, chlorine, hydrogen chloride, sulphur dioxide, ammonia, water vapour.

*Ions :* calcium, copper, iron, lead, zinc and ammonium ; carbonate, chloride, nitrate, sulphide and sulphite.

Knowledge of a formal scheme of analysis is not required. Semi-micro techniques are acceptable but candidates using such techniques may need to adapt the instructions given to suit the size of the apparatus being used.

Candidates are expected to have completed the following minimum practical work.

### SUGGESTED PRACTICAL WORK IN CHEMISTRY

1. Heat the given (unknown) substance, make observations, identify any products and make deductions where possible.
   (a) mercuric oxide, red lead, lead oxide
   (b) copper carbonate, zinc carbonate
   (c) washing soda, copper sulphate crystals
   (d) zinc nitrate, copper nitrate, lead nitrate
   (e) ammonium chloride

2. Add concentrated sulphuric acid to the unknown substance, warm the mixture, make observations, identify the product by two tests and make deductions.
   (a) a chloride (b) a nitrate

3. Add dilute sulphuric acid to the unknown substance, warm if necessary, make observations, identify the product and make deductions.
   (a) a sulphide (b) a carbonate (c) a metal

4. Apply the flame test to identify the metal in the unknown substance, (a) a sodium salt, (b) a potassium salt, (c) a calcium compound.

5. Make a solution of the unknown substance ; add sodium hydroxide solution, make observations and give your deduction. Warming the mixture may be needed.

   Choose from substances containing

   $Ca^{2+}$ , $Cu^{2+}$ , $Fe^{2}{}_{+}$ , $Fe^{3+}$ , $Pb^{2+}$ , $Zn^{2+}$ , $(NH_4)^{+}$.

6. Supply a solution of a dilute acid and alkali.

   Determine which is acidic and which basic, giving two tests for each.

7. Add concentrated hydrochloric acid to each of the given substances, warm, make observations, identify any product and make deductions.

   (a) copper oxide (b) manganese dioxide.

8. The percentage composition of a mixture of powdered salt and water-washed sand.

   (The experiment would test techniques in dissolving, filtering or decanting, washing and weighing. It may be counted out as taking too much time. The weakness could be met by supplying a given weight of the mixture ; also by choosing sand of such grain size that filtering or decanting will not be slow and yet not so large that separation of salt and sand cannot be done simply by sorting out mechanically the sand from the salt. The experiment took about 20 minutes using 10 g mixture (4 g sand, 6 g salt).)

## (*iii*) BIOLOGY

Biology should be presented to the pupils as a unified subject of both plants and animals. The interdependence and unity of life should be stressed and the differences should be noted between living and non-living matter and between plants and animals throughout the course.

Not only is a knowledge of the structure and physiology of animals and plants in the schedule required, but consideration of their natural history and ecology is also essential and evidence of this approach will be expected in the written answer.

Experimental work, observation of living organism, the maintenance of records, collecting and preserving specimens, should be encouraged, as it is an essential part in Science.

A microscope or a hand lens should be used whenever necessary. The notes set in smaller type are intended to provide guidance on the scope of the practical work.

**Objectives of the Course :**

The aims of the syllabus are to develop in the pupils :

(i) an understanding of the inter-relationships of animate objects and their environmental adaptations.

(ii) an understanding of the interdependence of plants and animals, and to enable pupils to acquire a clearer comprehension of the significance of life and its importance in human welfare.

(iii) the ability to observe specimens minutely, experiment, hypothesise, infer, handle equipment accurately and make correct recordings.

**There will be a Theory paper of 1½ hours and a Practical paper of 1½ hours.**

### THEORY

**1. Basic Biology:**

The cell, a unit of life, protoplasm and tissues.

For this section the use of a microscope is essential. Examination of an onion peel under the microscope to study various parts of the cell.

Reference should be made to all the activities of living things. Emphasis should be given to the basic differences between an animal and plant cell.

**2. Flowering Plants :**

(a) Outlines of the external morphology of a simple herbaceous plant e.g. mustard, sunflower, petunia, holly-hock.

(b) Life history of a familiar flowering plant.

(c) Elementary study of the main types of stem, root and leaf modification.

A simple idea of vegetative reproduction illustrated by examples. A general idea of simple and compound leaves.

**3. Detailed Structure of a Flowering Plant :**

(a) A general outline of the internal structure of stems, roots and leaves to show the arrangement of tissues.

Only the main structure is required—the development of tissues and secondary tissues is not necessary.

(b) The structure of a bisexual flower. Functions of the various parts of a flower.

(c) Pollination—self and cross pollination.

Candidates should be familiar with a few types of cross pollination and the flower structure that assists in cross pollination.

(d) Fertilization.

Fertilization should be treated without reference to microscopic detail other than the growth of the pollen tube and fusion nuclei.

(e) Fruit and seed dispersal.

Candidates should be familiar with common methods of dispersal illustrated by examples of each.

**4. Plant Physiology :**

The whole of this section should be treated experimentally with sufficient theory to explain the phenomena and their importance to the plant.

(a) Absorption by roots—The process of diffusion and osmosis, the absorption of water and mineral salts, the importance of turgor.

These processes should be shown with an artificial cell and with living material.

(b) The rise of water up the xylem vessels (conduction by the stem).

The path should be demonstrated by the use of dyes—a general idea of causative forces—no quetions will be set on causative forces.

(c) The process of transpiration.

Experimental work should include the loss in weight of a potted plant or of a leafy shoot in a test tube, the use of cobalt chloride paper, and the effect of external conditions on the rate of water loss. When a potometer is used, its limitations should be stressed.

(d) Photosynthesis : the nature of the process itself, and the great importance of photosynthesis to life in general.

Candidates should be able to show by experiments the necessity of light carbon dioxide and chlorophyll and also the formation of starch and the output of oxygen.

(e) Respiration : The nature of the process and its significance in other vital activities.

Experiments should be carried out on gaseous exchanges and on heat production.

(f) Tropisms.

This should include the geotropic response of primary roots and phototropism of shoots.

(g) Germination of seeds, conditions for seed germination.

(h) The Nitrogen cycle, including the living organisms which play a part in it.

Names of individual bacteria are not required.

**5. Flowerless Plants :**

Bacteria and fungi—A brief study of bacteria, and a fungus mould. Life history of a mould. A simple study of decay and disease with reference to bacteria and mould fungi.

Examination of bacteria and bread mould with a hand lens or microscope.

**6. Animal Study :**

(a) Characteristics of each group of animals.

Candidates should be familiar with examples of various types of vertebrates and invertebrates and the phylum to which they belong.

(b) External features, and life history of an amoeba, a fish, an amphibian (frog), and a bird.

Charts and actual specimens should be used. Observations should be recorded. Pupils should consider how animals are adapted to their environment and mode of life No more detail is expected than can be seen with the aid of a hand lens.

(c) Insects—structure, outlines of the life history, economic importance of the mosquito and butterfly.

Candidates should make their own observations on the insects in their natural surroundings and these should be supplemented by records made from living specimens kept in the laboratory.

(d) Mammal. The main features and the general arrangement of the internal organs.

It is suggested that a small mammal e.g. rabbit or rat, be used but with frequent reference to man.

(e) Nutrition in animals—The structure of a tooth—different types of teeth—incisors, canine, premolar and molar.

(f) Nutrition in Man—Classes of food—balanced diet. Digestion—organs of digestion and digestive glands and their function. Action of enzymes, in aiding digestion. Absorption, transportation and utilization of digested food. The function of the liver in the general body metabolism.

Tests for reducing sugar, starch, protein and fats should be carried out by candidates. The importance of vitamins and enzymes

should be stressed. Names of specific enzymes will only be required in the case of ptyalin and pepsin, but candidates should understand that there are specific enzymes in the small intestine acting on proteins, carbohydrates and fats. The action of ptyalin and pepsin should be studied experimentally.

(g) The main features of the circulatory system, the structure of the heart, structure and functions of blood, circulation of blood.

Charts, models and specimens should be used to explain the structure and function of the circulatory organs. Names will be required only of the main blood vessels of the liver and kidney and those entering and leaving the heart. Blood should be examined microscopically.

(h) Respiration : the respiratory organs and the mechanism of breathing and tissue respiration.

Charts, models and specimens (goat's lungs) to be used to demonstrate the functions of lungs.

(i) Excretion by kidney, sweat glands and lungs—elementary treatment of the structure and the function of the kidney.

The kidney should be treated as comprised of cortex and medulla and consisting of a branched system of tubules well supplied with blood vessels leading to the ureter. Details of the courses of the tubules and their blood vessels will not be required.

(j) Structure and functions of the skin.

A vertical section of the skin should be examined with the aid of a microscope or hand lens.

(k) Regulation of body temperature.

(l) The general plan of the skeleton and its functions. Types of joints with simple examples. A simple study of the work of muscles.

Only the names of the main bones of the skeleton are required. Names of vertebrate and of the individual bones of the skull and pelvis are not required.

(m) Nervous System : A simplified account of the brain and spinal cord, reflex action and how it differs from voluntary action, the principal sense organs, their position and function, the structure of the eye and ear simply treated, the use of spectacles for the correction of short and long sight.

Only the external structure of the brain is needed but reference should be made to the distribution of white and grey matter. The ear should be treated as consisting of a cochlea sensitive to vibrations and semicircular canal sensitive to position—Models, charts and specimens should be used.

(n) The reproductive organs, fertilization and a general outline of nutrition and respiration of the embryo.

Details of the cell division and the anatomy of the embryo are not required.

(o) A general study of Endocrine glands.

## PRACTICAL

The practical examination will be designed to test the ability of the candidate to make accurate observations from specimens of plants and animals. For this he should be familiar with the use of a hand lens of not less than x6 magnification. He should be trained to make both simple and accurate drawings and brief notes as a means of recording his observations.

The practical examiners will assume that candidates will have carried out the practical work outlined below.

**Plant Life :**

1. Specimens of simple flowering plants for morphological study. Identification and drawing of the root, stem, leaf and flower. The parts of the flower to be drawn in detail and labelled. Suggested specimens : Petunia, Hollyhock, Sun-flower, the Bean or the Pea, Mustard, Lily.
2. Specimens of different types of underground stems for examination, identification, drawing and labelling. e.g., Potato, Onion, Ginger.
3. The physiological experiments for respiration and transpiration to be set up by the teacher and the pupils to identify the products, draw and label the apparatus.
4. Experiments on osmosis, diffusion and absorption, to write down the observations, draw and label the apparatus.
5. Food test for starch, proteins and fats to be done by the pupils.
6. A cross-pollinated flower to be examined and identified and the parts to be drawn and labelled : e.g. the Shoe Flower, the Bean or Pea flower.
7. Specimens of different types of fruits and seeds (with mechanisms for dispersal) for examination, identification, drawing and labelling.
8. Specimens of germinating seeds (e.g. the bean, maize, castor) for examination, identification, drawing and labelling the parts.

**Animal Life :**

1. Examination and identification of the larva of the butterfly, drawing and labelling the parts.
2. The external features of a fish including gills to be examined, identified, drawn and labelled.
3. The external features of a cockroach to be examined, identified, drawn and labelled.
4. The external features of a frog (or toad).

**6 : One of the following Subjects**

(i) Art
(ii) Music (Indian or Western)
(iii) Commerce
(iv) Economics
(v) Accounts
(vi) Commercial Organization and Office Practice
(vii) Technical Drawing
(viii) Home Science
(ix) Cookery
(x) Needlework
(xi) A Modern Foreign Language
(xii) A Classical Language
(xiii) Physical Education

**IMPORTANT NOTE ON THE ABOVE SUBJECTS**

(1) **Syllabus** : The syllabus for each of the above subjects is given on pages 60 to 97.

(2) **Examination** : Each of these subjects will be examined in **two** parts as follows :

(a) **Part 1** : External Examination. The papers will be set and marked by the Council.

(b) **Part 2** : To be assessed internally by the school as follows :

(i) Assessment by the Teacher : 50 marks

(ii) Assessment by a *Visiting Examiner* : 50 marks

The method and basis of assessment has been given under each subject.

(3) **Part 2** : In *Part 2* of each of the subjects candidates will be required to do *Practical work or course and Project work.* Details are given under Part 2 of each subject.

(4) **Time** : The period of time to be allotted to *Part 2* of each of these subjects will be that of *one school year.* School may arrange for this practical work to be done in Class IX or in Class X, or partly in Class IX and partly in Class X.

(5) **Visiting Examiner** : The Head of the School will make arrangements for a suitably qualified *Visiting Examiner,* who may be a teacher of the subject in another school, for the final test or assessment of the practical work of candidates in each subject offered.

All expenses in connection with the Visiting Examiner will be borne by the School.

(6) **Mark Sheets** : The Council will provide mark sheets to Heads of Schools to submit the result of *Part 2* of each subject. The Head of the School will be responsible for the correct entering of marks awarded to each candidate by the Teacher and by the Visiting Examiner. These completed mark sheets will have to be sent to the Council at least one month before the commencement of the written examination.

## (I) ART

**Part 1** : *External Examination*

There will be *four* papers. Candidates will be required to offer any *two* papers :

Paper 1. ($2\frac{1}{2}$ hours) Drawing or Painting from Still Life.

Paper 2. ($2\frac{1}{2}$ hours) Drawing or Painting from Nature.

Paper 3. (3 hours) Original imaginative composition in colour.

Paper 4. (3 hours) Craft.

Success or failure will depend on a candidate's performance in the subject as a whole.

**Paper 1** ($2\frac{1}{2}$ *hours*) DRAWING OR PAINTING FROM STILL LIFE :

A group of objects which will be artificial or natural and may include such things as cut flowers, fruit, vegetables, a growing plant, as well as domestic or other artificial objects ; the group may be drawn or painted. The work can be carried out, if the candidate wishes, in relation to the surroundings or the part of the room in which the group is placed. If the group is painted, the background must be included.

**Paper 2** ($2\frac{1}{2}$ *hours*) DRAWING OR PAINTING FROM NATURE :

This paper is divided into two separate sections. Candidates may offer either A or B. In both sections, the subject may be interpreted freely, either in a decorative or in a realistic manner.

A. *Study of the structure of natural forms* : such as a spray or branch which may include flowers ; foliage or fruit ; fossils ; bones etc. Candidates are expected to reveal their appreciation of natural growth or structure by means of drawing or painting.

B. A subject will be set for drawing or painting out of doors. There should be evidence of direct study from nature.

**Paper 3** (*3 hours*) ORIGINAL IMAGINATIVE COMPOSITION IN COLOUR :

A paper containing a list of alternative subjects will be given to candidates one week before the examination. The actual composition will be executed in the examination room after a period of not less than 7 days from the distribution of the paper to the candidates ; sketches or other notes must not be taken into the examination room. Since this is a test of original work, it would be inappropriate for any form of guidance to be given to candidates other than that printed on the question paper A variety of themes will be set ; these may be given in the form of titles indicating the subject or of specified subjects for inclusion in a composition, or in any other form that will stimulate the imagination. Candidates should base their work if possible on scenes which they have themselves observed. Any style or technique including that which is traditional in the candidate's own area may be used.

**Paper 4** (*3 hours*) CRAFT :

Candidates will be required to answer any *one* question. The object of this paper is to test the ability of candidates in craftwork where the material is restricted to flat paper, ink and/or colour. Questions will be set requiring the design and execution of the following :

the page of a book, book cover, or end paper :
a notice or pictorial poster ;
a card, such as a Christmas card or invitation card, or emblem ;
a patterned paper for a specific purpose.

Several but not all of these alternative subjects will be set and candidates will be required to select any one of them. There will be an opportunity to make full use of the calligrapher's art with drawn and painted, pen-made or brush-written lettering.

NOTES :

(*a*) Any medium may be used provided that it is suitable for the subject. Painted work must be carried out in a quick-drying medium and must be completely dry before it is dispatched. When acrylic paint is used for examination work, it must be mixed with water. All paints used must be of adequate quality; if coloured crayons or chalk are used, they must have a range and quality comparable with that of paints and must be carefully fixed at the examination centre before the work is sent to the Examiner. Monochrome may be used where

permitted by the regulations for each Paper but will not be accepted as satisfying the requirement in respect of colour for Paper 3.

(*b*) Candidates must use their judgement with regard to (i) the size of a drawing or painting, (ii) the proportion of height to width within the space available. In all cases credit will be given to good composition.

(*c*) In each of Papers 1 to 3 the test is one of free drawing or painting, therefore any mechanical means for the execution of the drawing or painting (such as measuring or ruling) are not allowed. Instruments and tracing paper are allowed for Paper 4, but candidates are advised to restrict their use as far as possible.

(*d*) Where question papers or printed instructions provide for alternative groups, etc., the Supervisor in consultation with an Art Teacher will decide which of these alternatives is to form the subject of the examination, after taking account of local convenience, etc. At centres for candidates from more than one school, both of the alternative subjects in Paper 2 (Plant Drawing) must be provided if they are required by schools or candidates.

(*e*) Suitable alternative subjects will be provided for the different areas, so far as this may appear desirable. Account will be taken of different climatic conditions in the selection of flower specimens, etc.

(*f*) The paper supplied for use in the examination room will be about 35 × 25 cm. Schools or candidates wishing to work on a larger scale, *not* larger than Half-Imperial or Royal (65 cm × 50 cm) or on a different type or tone of paper, will be at liberty to provide their own. Work which is carried out on stiff boards, or which is mounted cannot be accepted. The paper used by candidates must not be less than 35 cm × 25 cm and the work submitted must fill or approximately fill the page.

(*g*) **All drawings must be packed flat and not rolled.** Half-Imperial and Royal sheets should be folded across the middle. When drawings are too large to enclose in the envelopes provided it is essential that the information required on the front of the envelope be given and that the envelope itself be packed in the same parcel with the drawings.

(*h*) Examiners are caused great inconvenience by candidates failing to write their examination numbers either clearly or correctly,

thus making indentification difficult. Schools are asked to co-operate by impressing upon candidates that they must write their names and full examination numbers (e.g. T 002/021) both clearly and correctly on their examination work, and that on drawings and paintings this must be written on the front (top right hand corner) and also on the back. They must not write anything else on the front of the picture. Failure to observe this instruction may result in loss of marks.

*STANDING INSTRUCTIONS FOR SUPERVISORS*

**Papers 1 and 2 :**

The printed 'Instructions' for these papers which are sent to schools well in advance of the examination will be limited as far as possible to the subjects of the tests. They are for the use of the Supervisor only, in consultation with the Art teacher.

It is important that early attention should be given to the provision of the subjects required. In papers 1 and 2 both alternatives must be set if required by candidates.

The group or subject should be arranged so that each candidate obtains an uninterrupted view ; for Papers 1 and 2 candidates should not be more than 4 m from the group. Candidates may form a semi-circle but not a complete circle round the groups ; more than one session may be arranged if there is a large number of candidates. The examination must be held in good light but care must be taken that the sunlight does not fall upon the group or subject while work is in progress. If the group or subject is painted, the background must be included.

The surface on which the group of objects for Paper 1 and the group for painting only in Paper 2 is arranged must be below the level of the candidate's eye-level.

**Drawing and Painting from Nature :**

*Alternative A. Study of the structure of natural forms.*

It is desirable that each candidate be given a separate specimen and be permitted to handle and arrange it.

If the specimens named in the Instructions are not available, Supervisors may, with the asistance of the Art teacher, substitute other specimens as similar as possible to those which have been set. The name of the specimen used must be stated on the back of the drawings in small block capitals.

Sprays, when these are set, must be reasonably large and full and in good condition : they should be displayed in a vase or bottle and be clearly visible against a plain background. The container must not be drawn.

**Original Imaginative Composition in Colour :**

Copies of the Paper are to be given to the candidates at least a week before the Paper is taken in the examination room, and candidates should be instructed to bring their copies of the question paper with them at the time fixed for this Paper.

**Craft :**

At centres where the necessary arrangements can be made, candidates may cut and print from a block in the examination room. Folded and cut-out paper may be used in making designs. Collage may be used.

**Part 2 :** *To be assessed internally by the School.*

**Practical Work in Art**

**(A) Course Work**

(i) Candidates will be required to practise, sketching, painting, drawing etc., in preparation for the examination. They will also undertake practical work on any of the topics suggested below. The practical work of the candidates will be assessed by the teacher as course work. The teacher is free to assess the course work either on the basis of continuous assessment or on the basis of periodical tests.

(2) Suggested topics for practical work :

(i) Pottery work.
(ii) Sculpture ; any medium.
(iii) Carvings in any available material : e.g. wood, plaster, stone.
(iv) Panels or reliefs in clay or plaster.
(v) Block-printing, batik, tie and dye etc., on any material.
(vi) Printing from original wood or lino block.
(vii) Creative photography.

**(B) Finished Work**

In addition to the course work the candidates will have to submit *four* pieces of finished Art work for assessment by the *Visiting Examiner*. The topics on which these pieces of *Art work* may be

based can be taken from the syllabus or from any of the topics listed in (A) (2) above or from any other aspect of Art.

**(C) Assessment :**

(1) The teacher and the visiting examiner will assess the *Art work* of the candidates on impression by creating *three* groups ; isolating the very *best work* and the very *worst work*. The middle group will then be subdivided into the best, middle and worst so as to form *five* groups.

(2) While placing the work of the candidates in the various groups the following aspects should be taken into consideration :

(i) Imaginative expression.
(ii) Quality of pattern, line and materials.
(iii) Skill in the use of tools and materials.
(iv) Use of colour.

*Other aspects may also be considered depending on the nature of the practical work.*

(3) Candidates in the five groups will then be given marks in accordance with the table given below using the full range in each group as far as possible :

| | | | | |
|---|---|---|---|---|
| A | between | 41 | and | 50 |
| B | " | 31 | " | 40 |
| C | " | 21 | " | 30 |
| D | " | 11 | " | 20 |
| E | " | 0 | " | 10 |

## (II) MUSIC

### (a) HINDUSTANI MUSIC :

**Part 1** : *External Examination.*

There will be *one* paper of *two* hours.

Candidates will be required to attempt *five* questions in all : *two* questions from Section A, and *either three* questions from Section B, (Vocal-Instrumental) *or three* questions from Section C, (Tabla).

**Syllabus**

The syllabus is divided into three Sections :

*Section A* — Vocal.
*Section B* — Instrumental.
*Section C* — Tabla.

Candidates will be required to offer *one* of the three sections only. In the question paper questions of Section A will be common to all the *three* parts, questions of Section B will refer to Parts 1 and 2 of the syllabus (Vocal/Instrumental) and questions of Section C will refer to Part 3 of the syllabus (Tabla).

**Section A** : Vocal Music.

**Paper 1** (Theory) Two and half hours.

1. Elementary knowledge of the following :

   Sangit ; Two main systems of Indian Music ; Nad ; Shruti ; Swar; Prakrit Swar (Shudha); Vikrit Swar (Komal & Tivra); Saptak (Mandra, Madhya, Tar) ; That ; Varna (Sthayi, Arohi, Avarohi ; (Sanchari) Alankar (Palta) ; Raga, Jati (Odava, Shadava, Sampoorna) ; Vadi, Samvadi ; Anuvadi, Vivadi ; Pakad ; Alapi Tan ; Swarmalika ; Lakshangeet ; Khyal; Sthayi ; Antara ; Laya (Vilambit, Madhya, Drut); Matra ; Tal ; Vibhag, Sam, Tali Khali ; Dwigun, Theka, Avartan; Varja.

2. Explanation with definition and illustration of the following : Sound ; production of sound, vibration ; frequency ; three qualities of sound (Volume, Pith, Timbre); forms of composition (Bada Khyal, Chhota Khyal Dhrupad, Dhamar, Tappa, Thumri, Lakshangeet, Sargam—(detailed descri-

ption is not required) ; parts of a song (Sthayi, Antara, Sanchari, Abhog) ; Janak That ; Janya Raga ; Ashraya Raga, Grah ; Ansha ; Nyasa ; Vakra Swar ; Poorvanga-vadi and Uttaranga-Vadi Ragas ; Relationship of Vadi Swar with the time of singing / playing ; Poorva Raga, Uttar Raga ; Kanswar ; Sparsh Swar, Meend ; Tigun, Chaugum.

3. Description of the following 15 Ragas :
Bilawal ; Khamaj, Yaman, Kaphi, Bhairava, Aravari, Bhoopali, Bihag, Durga, Desh, Bhairavi, Sarang, Bageshwari ; Bhimpalasi, Piloo.
4. Tal-notation of the following :
In Thah, Dugun, Chaugun, Teental, Jhaptal, Chartal, Dadra, Kaharawa, Ektal, Tilwara, Roopak, Tivra, Jat Tal.
5. Notation of songs with Alap, Tan, Boltan in any Indian System of notation-writing.
6. Identification of Ragas by written note-combinations.
7. Comparison and contrast between similar Ragas.
8. Contribution of Bhatkhande and Visnudigambar.
9. Essay on general interest in Music.

**Section B :** Instrumental Music (excluding Tabla)

1. Elementary knowledge of the following :
Sangit, Two systems of Indian Music , Sound ; Nad ; Sthan (Mandra, Madhya, Tar) Shruti ; Swar ; Chal and Achal Swar ; Prakrit (Shudha) ; Vikrit (Komal and Tivra), Saptak (Mandra, Madhya, Tar) ; Thata, Varna (Sthayi, Arohi, Avarohi and Sanchari) Aroha ; Avaroha, Alankar (Palta) ; Raga, Jati (Odava, Shadava, Sampoorna), Vadi, Samvadi, Anuvadi, Vivadi, Varjya, Pakad, Alap, Tan, Gat, Sthayi, Antara, Toda, Bol ; kinds of Bol—Akarsha Prahar (Sulat) and Apakarsh Prahav (Ulat) ; Laya (Vilambit, Madhya, Drut) Matra ; Tal ; Vibhag ; Sam ; Tali, Khali, Theka, Avartan ; Thah ; Dugun, Chaugun; Notation Systems.
2. Explanation, definition and illustration of the following :
Sound ; production of sound ; Vibration and frequency ; Number of vibrations ; Three qualities of sound (Volume, Pitch, Timbre); relation of pitch with number of vibrations ; Janak Thata, Janya Raga, Ashraya Raga, Graha, Ansha.

Nyasa ; Time and poorvang-uttarang of Saptak ; Poorva Raga ; Uttar Raga ; relationship of Vadi Swar with the time of Raga, Tigun, Chal and Achal Thata ; forms of Gat (Razakhani and Masitkhani) and their difference ; method of tuning of different strings, Zamzama, Jhala, Baj (Dilli, Poorab etc) ; Meend ; Soot ; various methods of handling instruments.

3. Description of the different components of the instruments with illustration in sketch/drawing.
4. History of the instrument.
5. Tal-notation of the following Tals :—
   Teental, Jhaptal, Chartal, Dadra, Kaharawa, Ektal; Tilwara, Roopak, Tivra, Jat Tal.
6. Notation of writing Gat, Toda, Jhala etc.
7. Identification of Ragas.
8. Essay on general interest in music.
9. Description of the following Ragas.
   Yaman, Bhoopali, Kaphi, Bhairava, Bhairavi, Khamaj, Bilawal, Bhimpalasi, Bageshwari, Sarang, Desh, Bihag, Asavari, Kalrugada, Piloo, Malkaus.
10. Comparison and contrast between similar Ragas.

**Section C** : Tabla

1. Knowledge of the following with definition and illustration : Laya (Vilambit, Madhya, Drut), Matra, Tul, Vibhag ; Sam : Tali, Khali, Thah, Doon ; Chaugun, Thoka, Bol ; Kayada, Palta, Tihai, Mukhada, Mohra, Kisme, Tukada, Avartan, Tigun, Rela, Pavan, Uthau, Kal.
2. Origin and development of Tabla.
3. Description of the Tabla and various components with sketch/drawing.
4. Kinds of Tal-Jati.
5. Essay on general interest in music.
6. Contribution of any one Tabla-player.
7. Technique of producing Syllabus on Tabla and Baya.
8. Knowledge of Tal-notion, writing of Talas in Tah, Doon, Chaugun, speeds of the following Talas : Teental, Jhaptal, Ektal, Chartal, Dadra, Sulfak, Tivra, Kaharawa, Tilwara, Roopak, Jat, Jhoomara.

9. Writing in Tal notations of various Kayada, Paltas, Kisme, Mohras, Tihai, Tukada, Relay, Mukhadas, Uthau. Paran.

**for Part 2 see page 68**

## (b) CARNATIC MUSIC

**Part 1** : *External Examination.*

There will be *one* paper of *two* hours.

Candidates will be required to attempt *five* questions from a choice of 8 or 10 questions.

### Syllabus

1. The fundamental technical terms and their meanings.
2. Principle of Sa, Re, Ga, Ma, notations—significance of symbols commonly used.
3. Raga classification in Carnatic music—scheme of 72 melakarthas—the names and syllables of 12 chakras—katapayadi formula and its application--8 kinds of janyaragas—ragalakshana.
4. Lakshanas of the following 16 ragas.
   (1) Todi
   (2) Bhairavi
   (3) Kharaharapriya
   (4) Kalyani
   (5) Sankarabharanam
   (6) Shanmukhayriya
   (7) Kamavardhini
   (8) Chakravakam
   (9) Kambhoji
   (10) Anaodabhairavi
   (11) Bilahari
   (12) Saveri
   (13) Poorvi Kalyani
   (14) Hindolam
   (15) Mohana
   (16) Hamsadhwani
5. Manodharma sangita and its forms, Raga, Alapana Paddhati—Kalpanasvaras—Dasavidha gamakas.
6. The scheme of 35 talas—Chapu tala and its varieties—Desadi and Madhyadi talas—Kriya—Anga—Laya—Gati—Matra (a detailed knowledge of any two)—Shadangas.
7. Musical forms and their classification—An advanced knowledge of the following musical forms :
   Gita, Tanavarna, Padavarna, Kriti, Ragamalika, Padam, Javali.
8. History of Carnatic music with special reference to the following composers and theorists, including their

biographies and their contribution to Carnatic music : 1, 2, 3 and any 10 of the other 24 must be known.

(1) Thyagaraja
(2) Syama Sastry
(3) Muthuswami Dikshitar
(4) Jayadeva
(5) Narayana Tirtha
(6) Venkatamakhi
(7) Paidala Gurruthy Sastry
(8) Purandaradas
(9) Somanadha
(10) Bhadrachala Ramadas
(11) Kshetrajna
(12) Arunachala Kavirayar
(13) Svati Tirunal
(14) Veena Kuppayyar
(15) Patnam Subramaina Iyer
(16) Gopal Krishna Bharati
(17) Subbaraya Sastry
(18) Mysore Sadasiva Rao
(19) Pallavi Seshayyar
(20) Tallapaku Annamiah
(21) Kotiswara Iyer
(22) Muthiah Bhagavathar
(23) Mysore Vasudevachar
(24) Papanasam Sivan
(25) Suddhananda Bharati
(26) Balamurali Krishna
(27) Sadasiva Brahmendra

9. Classification of musical instruments into string, wind and percussion group. A general knowledge of Vina, Violin, Gottuvadyam, Tambura, Flute and Mridangam—Training of human voice and compass of the concert instruments in south India.

10. Musical sound and voice—Pitch, intensity, and timbre—Sympathetic vibration—Resonance—Echoes—Musical intervals—Modal shift of tonic i.e., Grahabhedam.

**Part 2 :** *To be assessed internally by the School.*

**Practical Work in Music** (*Hindustani and Carnatic*)

**(A) Course Work**

(1) Candidates will be required to practise and perform singing or playing one or more musical instruments such as Tabla, Violin, etc. This practice and performance may also be undertaken in connection with the topics suggested below. The practical work of candidates will be assessed by the teacher as course work. The teacher is free to assess the course work either on the basis of continuous assessment or on the basis of periodical tests.

(2) Suggested topics for practical work :
(i) Individual performances.
(ii) Practice for school functions.

(iii) Performance in a group of either players or singers, not necessarily in school.

(iv) Making of a musical instrument.

(B) **Final Test**

In addition to the course work the candidates will be tested in singing or playing one instrument by the Visiting Examiner. Where a candidate has chosen to make a musical instrument the instrument may be put up for inspection by the Visiting Examiner. Where a candidate has personally taken part in performances, tape recorded evidence may be submitted for the assessment by the Visiting Examiner.

(C) **Assessment :**

(1) The teacher and the visiting examiner will assess the practice and performance of candidates by creating *three* groups where possible ; isolating the *best performance* and the *worst performance*. The group of candidates in the *middle* will then be subdivided into the best, middle and worst, so as to form *five* groups.

(2) While placing the work of the candidates in various groups the following aspects of practice and performance should be taken into consideration :

(i) Musical performance :
Expression
Diction
Tonal quality
Breath control

(ii) Accuracy

(iii) Style and interpretation

Other aspects may also be considered depending on the nature of the practical work.

(3) Candidates in the five groups will then be given marks in accordance with the table given below using the full range in each group as far as possible :

| | | | | |
|---|---|---|---|---|
| A | between | 41 | and | 50 |
| B | " | 31 | " | 40 |
| C | " | 21 | " | 30 |
| D | " | 11 | " | 20 |
| E | " | 0 | " | 10 |

## (c) WESTERN MUSIC

**Part I** : *External Examination.*

There will be *one* paper of *two* hours. Candidates will be required to attempt *nine* questions in all, *five* questions from Section A and *four* questions from Section B.

### Syllabus

The syllabus is divided into two Sections :

**Section A**—Musical Instruments.
**Section B**—Different categories of Music.

**Section A** : *Musical Instruments.*

1. *Five* questions will be set in this part. Candidates will be required to answer all *five* questions. The questions will cover the characteristics and music of the following families of instruments :

(a) Keyboard family and its music.
(b) String and guitar families and their music.
(c) Woodwind and brass families and their music.
(d) Percussion family and its music.

**Section B** : *Different categories of music.*

2. Candidates will be required to attempt *four* questions from this part, out of a choice of *ten* questions which will be set. The questions will cover the following categories of music.

(a) Symphony
(b) Concerto
(c) Music for the dance
(d) Jazz
(e) Popular music since 1950

3. The titles of the categories should be interpreted as widely as possible. Candidates should listen to a variety of music within the category title. In answering questions, which will require at least paragraph answers, candidates should refer knowledgeably and by name to the works to which they have listened.

4. Questions will be framed so as to give all candidates a chance to show the following :

(i) that they have heard varied works in a given category.

(ii) that they can see the essential musical similarities and differences between one work and another in the same category.

(iii) that they know the characteristics and what is typical of a particular category or kind of music.

(iv) that they are aware of the beginning and development of a particular category or kind of music.

(v) that they know the names of prominent composers and their contribution to a particular category or kind of music.

(vi) that they are aware of modern developments in a given field of music.

**Part 2 : Practical work in Music** (Western)

Candidates for the examination in Music (Western) will be required to have passed the Practical Examination of the Associated Board of Royal Schools of Music, Grade 4, or a more advanced grade, (or an equivalent examination approved by the Council).

(A) **Course work**

The practical work of candidates in Western Music in preparation for the practical examination of the Associated Board of Royal Schools of Music, Grade 4 or a more advanced grade, (or equivalent examination approved by the Council) will be taken as the requirement for course work in Western Music.

(B) **Final Test**

The practical examination of the Associated Board of Royal Schools of Music, Grade 4 or a more advanced grade, (or equivalent examination approved by the Council) will be taken in fulfilment of the final test for practical work in Western Music.

(C) **Assessment**

The result of the practical examination issued by the Associated Board of Royal Schools of Music, Grade 4 or more advanced grade, (or equivalent examination approved by the Council) will be taken as the assessment of **Part 2** of Western Music.

## (III) COMMERCE

**Part 1** : *External Examination.*

**Aims.**

(i) To give candidates a sufficient knowledge of the commercial world so that they can understand the processes involved.

(ii) To enable candidates to increase perception of their future role in society as producers and consumers.

There will be *one* written paper of *two* hours.

**Section A** will consist of questions requiring only short answers and will cover the whole of the syllabus. There will be no choice of questions.

**Section B** will consist of essay-type questions. There will be a choice of questions and candidates will be required to answer *four*.

### Syllabus

1. Human wants and their satisfaction with special reference to our country—division of labour—specialisation and mass production and localisation.

2. *Commerce.* Specialisation and necessity for exchange—nature and purpose of commercial activities—the divisions of commerce—classification of occupations.

3. *Business Units.* One-man business (sole proprietor), Partnerships, Joint-stock Company (both private and public)—State controlled industries—Private and Public sectors.

4. *Trade.*

(a) Retail. Functions of the retailer—forms of retail organisations—independent shops, multiple shops, departmental stores, chain stores, self-service stores, super markets, the retail market, mail order.

(b) Wholesale. Function of the wholesale warehouse ; purpose and organisation of the wholesale warehouse—services of the wholesaler to (i) the manufacturer and (ii) the retailer. Wholesale produce markets—functions of merchants, agents and brokers. Retail Cooperative Societies.

5. *Purchase and Sale of goods.* The functions of the main documents used—Trade and Cash discount—Hire Purchase—its importance—advantages and disadvantages for the producers and purchasers of consumption and capital goods. Consumer protection.

6. *Capital.* Methods of obtaining capital—nature and forms of fixed and circulating capital—capital owned and the capital employed by a business. Gross Profit and Net Profit, relation to turnover and to the capital invested.

7. *Transport.* The importance of transport in Commerce—the various methods—rail, road, inland waterways, sea transport, advantages and limitations of air transport.

8. *Money and Banking.* Features and functions of money—the development of banking—means of payment including those provided by the Post Office, its functions and services—different kinds of banks—savings, commercial, industrial and their functions—services of commercial banks to the business world with special reference to the cheque system, traders credit facilities, overdrafts and loans—the functions of the Reserve Bank of India—services of commercial banks to importers and exporters, methods of payment—bill of exchange.

9. *Insurance.* Nature and purpose—importance in modern business—the essentials of an insurance contract—terms used—insurable and non-insurable risks—utmost good faith and indemnity—Lloyds.

10. *Advertising.* Its functions and services.

**Part 2 :** *To be assessed internally by the school.*

**Practical or Project Work in Commerce**

Candidates will be required to :

EITHER (I) practise Shorthand or Typewriting or both,

OR (II) undertake at least *one* project.

**I. Shorthand and Typewriting**

(A) **Course Work**

The practical work in shorthand and typewriting will be assessed by the teacher as course work. The teacher is free to assess the course work either on the basis of continuous assessment or on the basis of periodical tests.

The practical work in typewriting should include the following :

(i) Complete mastery of the key board.

(ii) Ability to operate the machine at an average speed of 25 words per minute.

(iii) Ability to type a fair copy from manuscript notes with corrections.

(iv) Ability to select necessary details from information given and complete a typed form.

(v) Ability to display a business letter and type accompanying envelope.

(B) **Final Test**

**Practical :** In addition to the course work the candidates will be tested in shorthand and typewriting in the presence of the visiting examiner.

(C) **Assessment :**

(1) The teacher and the visiting examiner will assess the practical work in shorthand or typewriting or both creating *three* groups ; isolating the *best work* and the *worst work*. The group of candidates in the *middle* will then be sub-divided into the best, middle and worst, so as to form *five* groups.

(2) While placing the work of the candidates in various groups the following aspects should be taken into consideration :

(a) **In Shorthand :**

Speed tests dictated at 45, 50, 60 and 70 words per minute.
In transcription : Accuracy, spelling, punctuation and paragraphing.

(b) **In Typewriting :**

Accuracy.
Speed with a minimum average speed of 20 and a maximum of 40 words per minute.
Display in letter writing, tabulation.
Each of the following errors will be penalised ;
mis-spelling
crowding
poor vertical or horizontal placement
insertion of paragraphs
irregular line spacing
margins not balanced.

(3) Candidates in the five groups should then be given marks in accordance with the table given below using the full range in each group as far as possible :

| | | | | |
|---|---|---|---|---|
| A | between | 41 | and | 50 |
| B | " | 31 | " | 40 |
| C | " | 21 | " | 30 |
| D | " | 11 | " | 20 |
| E | " | 0 | " | 10 |

**II. Project**

**(A) Course Work**

(1) The course work undertaken by the candidates may be on any one aspect of the syllabus or may be based on any one or more of the topics given below, or on any other topic approved by the Council. The course work will be assessed by the teacher. The course work will consist of :—

(i) Four specially written essays, and
(ii) Four pieces of home work.

The course work may or may *not* be related to project work.

The teacher is free to assess the course work on the basis of continuous assessement or on the basis of periodical checks.

**(2) Suggested topics for project work :**

(i) A study of goods marketed by *one* or more of the following organisations :
  (1) Independent shops e.g. vegetable/fruit shops ; fair price shop ; paan wala ; fish/meat shop ;
  (2) General Merchants ;
  (3) Super Bazars ;
  (4) Cooperatives ;
  (5) Chain stores.

(ii) A survey of any one of the particular modes of transport e.g. air, rail, road, inland-waterways or sea transport.

**(B) Finished Work :** Candidates will be required to display the work of the project in the form of scrap books, graphs, posters, etc., for the assessment by the visiting examiner. The completed course work may also be included in the display.

**(C) Assessment :**

(1) The teacher and the visiting examiner will assess the course work/project work of the candidates by creating *three* groups ; isolating the *best work* and the *worst work*. The group of candidates in the *middle* will then be sub-divided into the best, middle and worst, so as to form *five* groups.

(2) While placing the course/project work of candidates in various groups the following aspects should be taken into consideration :

Preparation and organization
Research and methods adopted
Skills in work and presentation
Finished project

Other aspects may also be considered depending on the nature of the project undertaken.

(3) Candidates in the five groups should then be given marks in accordance with the table given below using the full range in each group as far as possible :

| | | | | |
|---|---|---|---|---|
| A | between | 41 | and | 50 |
| B | " | 31 | " | 40 |
| C | " | 21 | " | 30 |
| D | " | 11 | " | 20 |
| E | " | 0 | " | 10 |

## (IV) ECONOMICS

**Part 1** *External Examination.*

There will be *one* paper of *two* hours.

The paper will be divided into two sections A and B.

**Section A** will consist of questions requiring only short answers and will cover the whole syllabus. There will be no choice of questions.

**Section B** will consist of traditional-type questions. There will be a choice of questions and candidates will be required to answer *four.*

### Syllabus

1. (i) *Economics.* A description of the main structural features—Economic activity and Economic institutions in India with specia reference to agriculture, industry, trading, banking.

(ii) Theory of demand and supply.

2. *Population.* Size—age distribution—geographical and occupational distribution (covered in 1 (i) ).

3. *Geographical Factors.* (i) affecting economic activity, (ii) location of major industries with reasons determining their location.

4. *Labour.* (i) division (ii) efficiency (iii) uses of machinery—advantages and disadvantages.

5. *Trade.* Internal and international. Imports and exports—their character and geographical distribution.

6. *Production.* (i) for the market (ii) functions of the price system (iii) determination of prices (iv) how price changes affect the quantities supplied and demanded.

7. *Large and Small Firms.* (i) Private enterprise (ii) Public enterprise (iii) specialisation among firms (iv) the stages in the flow of goods and services from the time of manufacture of production till it finally reaches the consumer.

8. *Different forms of money.* (i) functions of a bank (ii) commercial banks (iii) central banks (iv) raising capital—main ways.

9. *Taxes.* (i) main kinds (ii) main objects of public expenditure.

**Part 2** : *To be assessed internally by the School*

**Practical or Project Work in Economics**

Candidates will be required to :

EITHER (I) practice Shorthand or Typewriting or both.

OR (II) undertake at least *one* project.

**I. Shorthand and Typewriting**

**(A) Course Work**

The practical work in shorthand and typewriting will be assessed by the teacher as course work. The teacher is free to assess the course work either on the basis of continuous assessment or on the basis of periodical tests.

The practical work in typewriting should include the following :

(i) complete mastery of the keyboard.

(ii) ability to operate the machine at an average speed of 25 words per minute.

(iii) ability to type a fair copy from manuscript notes with corrections.

(iv) ability to select necessary details from information given and complete a typed form.

(v) ability to display a business letter and type accompanying envelope.

**(B) Final Test**

**Practical :** In addition to the course work the candidates will be tested in shorthand and typewriting in the presence of the Visiting Examiner.

**(C) Assessment :**

(1) The teacher and the Visiting Examiner will assess the practical work in shorthand or typewriting or both creating three groups ; isolating the *best work* and the *worst work*. The group of candidates in the *middle* will then be sub-divided into the best, middle and worst, so as to form *five* groups.

(2) While placing the work of the candidates in various groups the following aspects should be taken into consideration :

(a) **In shorthand :**

Speed tests dictated at 45, 50, 60 and 70 words per minute. In transcription : Accuracy, spelling, punctuation and paragraphing.

(b) **In typewriting :**

Accuracy.

Speed with a minimum average speed of 20 and a maximum of 40 words per minute.

Display in letter writing, tabulation.

Each of the following errors will be penalised :

mis-spelling
crowding
poor vertical or horizontal placement
inserting of paragraphs
irregular line spacing
margins not balanced.

(3) Candidates in the five groups should then be given marks in accordance with the table given below using the full range in each group as far as possible :

| | | | | |
|---|---|---|---|---|
| A | between | 41 | and | 50 |
| B | " | 31 | " | 40 |
| C | " | 21 | " | 30 |
| D | " | 11 | " | 20 |
| E | " | 0 | " | 10 |

**II. Project**

(A) **Course Work**

(1) The course work undertaken by the candidates may be on any one aspect of the syllabus or may be based on any one or more of the topics given below, or on any other topics approved by the Council. The course work will be assessed by the teacher. The course work will consist of :

(i) Four specially written essays, and
(ii) Four pieces of home work.

The course work may or may *not* be related to the project work.

The teacher is free to assess the course work on the basis of continuous assessment or on the basis of periodical checks.

(2) **Suggested topics for project work :**

(i) A local cottage industry.
(ii) A local heavy industry.
(iii) A study of prices of essential commodities.
(iv) Cooperatives.
(v) Employment.

(B) **Finished work :** Candidates will be required to display the work of the project in the form of scrap books, graphs, posters, etc., for assessment by the Visiting Examiner. The completed course work may also be included in the display.

(C) **Assessment**

(1) The teacher and the Visiting Examiner will assess the course work/project work of the candidates by creating *three* groups, isolating the *best work* and the *worst work*. The group of candidates in the *middle* will then be sub-divided into the best, middle and worst, so as to form *five* groups.

(2) While placing the course/project work of candidates in various groups the following aspects should be taken into consideration :

Preparation and organization
Research and methods adopted
Skills in work and presentation
Finished project

Other aspects may also be considered depending on the nature of the project undertaken.

(3) Candidates in the five groups should then be given marks in accordance with the table given below using the full range in each group as far as possible :

| | | | | |
|---|---|---|---|---|
| A | between | 41 | and | 50 |
| B | " | 31 | " | 40 |
| C | " | 21 | " | 30 |
| D | " | 11 | " | 20 |
| E | " | 0 | " | 10 |

## (V) ACCOUNTS

**Part 1** *External Examination.*

**Aim.**

To assess the candidates' understanding of elementary accounting and how to apply this to simple business organisations.

**Scheme of Examination.**

The examination will consist of *one* paper of 2 hours. This will be divided into two sections : Section A will contain two compulsory questions and Section B will contain not less than *four* questions from which candidates will be expected to choose and answer *two*. Both sections may include questions on any part of the syllabus.

**Syllabus**

1. The purpose of keeping accounts and the principle of the double-entry system.

2. The recording of transactions and the main documents on which the records are based. Ledger accounts and their interpretation. The trial balance.

3. The three-column cash book. Simple form of bank Reconciliation Statement.

4. The petty cash book, simple and analytical; the imprest system.

5. Cash and trade discounts.

6. The simple use of the Journal. Purchases, Sales and Return Books.

7. Provision for expenses accrued and payments in advance.

8. Bad debts. (Not to include Bad Debts provision).

9. Depreciation : equal instalments and diminishing balance methods.

10. Trading and profit and loss accounts and balance sheet of a sole trader.

11. The balance sheet : structure and inter-relation of its items. The relationship between turnover, expenses, profits and capital. Fixed and current assets. Working capital.

12. Simple introduction to partnership accounts, to include partners' fixed capital accounts and drawings (current) accounts,

interest on capital, partnership balance. Appropriation accounts, showing division of net profit or loss. The balance sheet.

13. The accounts of non-trading organisations.

**Part 2** *To be assessed internally by the School.*

**Practical or Project Work in Accounts**

Candidates will be required to :

EITHER (I) practice Shorthand or Typewriting or both,

OR (II) undertake at least *one* project.

**I. Shorthand and Typewriting**

(A) **Course Work**

The practical work in shorthand and typewriting will be assessed by the teacher as course work. The teacher is free to assess the course work either on the basis of continuous assessment or on the basis of periodical tests.

The practical work in typewriting should include the following :

(i) complete mastery of the keyboard.

(ii) ability to operate the machine at an average speed of 25 words per minute.

(iii) ability to type a fair copy from manuscript notes with corrections.

(iv) ability to select necessary details from information given and complete a typed form.

(v) ability to display a business letter and type accompanying envelope.

(B) **Final Test**

**Practical :** In addition to the course work the candidates will be tested in shorthand and typewriting in the presence of the Visiting Examiner.

(C) **Assessment :**

(1) The teacher and the Visiting Examiner will assess the practical work in shorthand or typewriting or both creating three groups; isolating the *best work* and the *worst work*. The group of candidates in the *middle* will then be sub-divided into the best, middle and worst, so as to form *five* groups.

(2) While placing the work of the candidates in various groups the following aspects should be taken into consideration :

(a) **In shorthand :**

Speed tests dictated at 45, 50, 60 and 70 words per minute. In transcription : Accuracy, spelling, punctuation and paragraphing.

(b) **In typewriting :**

Accuracy.
Speed with a minimum average speed of 20 and a maximum of 40 words per minute.
Display in letter writing, tabulation.
Each of the following errors will be penalised :
mis-spelling
crowding
poor vertical or horizontal placement
inserting of paragraphs
irregular line spacing
margins not balanced.

(3) Candidates in the five groups should then be given marks in accordance with the table given below using the full range in each group as far as possible :

| | | | | |
|---|---|---|---|---|
| A | between | 41 | and | 50 |
| B | " | 31 | " | 40 |
| C | " | 21 | " | 30 |
| D | " | 11 | " | 20 |
| E | " | 0 | " | 10 |

## II. Project

### (A) Course Work

(1) The course work undertaken by the candidates may be on any one aspect of the syllabus or may be used on any one or more of the topics given below, or on any other topic approved by the Council. The course work will be assessed by the teacher. The course work will consist of :

(i) Four specially written essays, and
(ii) Four pieces of home work.

The course work may or may *not* be related to the project work.

The teacher is free to assess the course work on the basis of continuous assessment or on the basis of periodical checks.

(2) **Suggested topics for project work :**

(i) Pocket money account of each student.
(ii) Household accounts.
(iii) One aspect of School accounts.
(iv) Maintenance of Stock Registers.
(v) Sports fund accounts.
(vi) Trade shop accounts.

(B) **Finished work** : Candidates will be required to display the work of the project in the form of scrap books, graphs, posters, etc., for the assessment by the Visiting Examiner. The completed course work may also be included in the display.

(C) **Assessment**

(1) The teacher and the Visiting Examiner will assess the course work/project work of the candidates by creating *three* groups; isolating the *best work* and the *worst work*. The group of candidates in the *middle* will then be sub-divided into the best, middle and worst, so as to form *five* groups.

(2) While placing the course/project work of candidates in various groups the following aspects should be taken into consideration :

Preparation and organization
Research and methods adopted
Skills in work and presentation
Finished project

Other aspects may also be considered depending on the nature of the project undertaken.

(3) Candidates in the five groups should then be given marks in accordance with the table given below using the full range in each group as far as possible :

| | | | | |
|---|---|---|---|---|
| A | between | 41 | and | 50 |
| B | " | 31 | " | 40 |
| C | " | 21 | " | 30 |
| D | " | 11 | " | 20 |
| E | " | 0 | " | 10 |

## (VI) COMMERCIAL ORGANISATION AND OFFICE PRACTICE

**Part 1** *External Examination.*

**Aims :**

1. To give candidates a knowledge of commercial work.
2. To give candidates a knowledge of office procedure.

There will be *one* written paper of *two* hours.
The paper will be divided into two sections A & B.

**Section A** will consist of short answer questions covering the whole of the syllabus ; there will be no choice of questions.

**Section B** will consist of essay-type questions. There will be choice of questions and candidates will be required to answer **four.**

### Syllabus

1. Business etiquette. Duties and responsibilities of office personnel e.g. receptionists, typists, wages clerks, etc. Applying for a post—the interview.

2. Mail : Incoming and outgoing—Postal remittances—Remittances book.

3. Postage and petty cash records.

4. Filing and indexing systems.

5. The Post Office : its functions and services.

6. Letter writing. Common abbreviations—Memoranda.

7. Elementary knowledge of preparations and payment of wages with PAYE and statutory deductions (excluding tax tables). Coin and note summaries.

8. The telephone : its use—messages.

9. Books of reference : dictionary—telephone directory—classified trades directory—Post Office Guide—Railway Guide.

10. Banking : the mechanics of operating a bank account.

11. Business documents : the use of the following in a business transaction : enquiry, quotation, price list, catalogue, order form, pro-forma invoice, advice note, invoice, delivery note, credit note, debit note, statement, cheque, receipt.

12. Stationery : paper and envelope sizes—kinds of paper.

13. Office machinery : functions and uses—spirit and ink duplicators—photocopiers—stencil cutter—typewriters—addressing machine—mail handling equipment—teleprinter.

14. Simple treatment of distinguishing features of main types of business units—one-man business, partnership, joint stock company (private and public), nationalised industries and municipal enterprises.

15. Stock records; departmental requisitions—stock record cards.

16. Simple treatment regarding meetings procedure : the officers (Chairman and Secretary)—types of meetings (e.g. A.G.M., standing committees, sub-committees, joint-committees)—layout of an agenda—an understanding of the layout of minutes (including their indexing)—the collection and recording of votes (excluding rules of business meetings).

17. Elementary printers' correction signs : checking proof copies—working from a manuscript and drafts.

18. The recording of cash and credit sales.

**Part 2** *To be assessed internally by the School.*

**Practical Work in Commercial Organisation and Office Practice**

(A) **Course work**

(1) Candidates will be required to practise shorthand or typewriting or both and/or practise the use of office machines, like duplicators, teleprinters, addressing machines, etc.

The *practical work* in shorthand, typewriting and in the use of office machines will be assessed by the teacher as course work. The teacher is free to assess the course work either on the basis of continuous assessment or on the basis of periodical tests.

(2) The practical work in typewriting should include the following :

(i) complete mastery of the keyboard.
(ii) ability to operate the machine at an average speed of 25 words per minute.
(iii) ability to type a fair copy from manuscript notes with corrections.
(iv) ability to select necessary details from information given and complete typed form.
(v) ability to display a business letter and type accompanying envelope.

(B) **Final Test**

In addition to the course work the candidates will be tested in shorthand or typewriting or both by the Visiting Examiner. The test

will consist of items described in A (2) above and the assessment will be based on (C) (2) below :

(C) **Assessment :**

(1) The teacher and the Visiting Examiner will assess the practical work in shorthand or typewriting or use of office machines by creating *three* groups, isolating the *best work* and the *worst work.* The group of candidates in the *middle* will then be subdivided into the best, middle and worst so as to form *five* groups.

(2) While placing the work of the candidates in various groups the following aspects of practice and work should be taken into consideration :

(a) **In shorthand :**

Dictation at speeds of 45, 50, 60 and 70 words per minute.

**Transcription** : Accuracy, spelling, punctuation and paragraphing.

(b) **In typewriting :**

Accuracy.

Speed with a minimum of 20 and a maximum of 50 words per minute.

Display in letter writing, tabulation, or column work.

Each of the following errors will be penalised ;

mis-spelling

crowding

poor vertical or horizontal placement

inserting of paragraphs

irregular line spacing

margins not balanced etc.

(c) **In the use of office machines**

Efficiency and skill in handling the machine

Clarity and neatness of matter.

Display and adjustment of matter.

(3) Candidates in the five groups should then be given marks in accordance with the table given below using the full range in each group as far as possible :

| | | | | |
|---|---|---|---|---|
| A | between | 41 | and | 50 |
| B | " | 31 | " | 40 |
| C | " | 21 | " | 30 |
| D | " | 11 | " | 20 |
| E | " | 0 | " | 10 |

## (VII) TECHNICAL DRAWING

**Part 1** *External Examination.*

There will be *one* paper of 3 hours based on the following syllabus :

1. *Lettering.*
2. *Orthographic projection.*
3. *Sketching :*

Sketching involving common tools and processes along with common simple mechanical devices met with in everyday life. Wheelbarrow, wheels and axle, turnbuckle, tool rest for wood in the wooden jack plane, two irons of a jack plane, hacksaw frame. Fountain pen, cold water tap, nut crackers, pincers, pliers, etc.

4. *Geometrical Drawing :*

(a) Plane Geometry. Simple problems relating to tangency, e.g., circle and straight line, circle in contact, construction of scales (plain), proportional division of lines.

(b) Solid Geometry. Solid with surfaces or axes inclined to the H.P., use of auxiliary plane. Projection of the end elevation on solids. Solids with the surface or axes inclined to the V.P. prisms with the surfaces inclined to the H.P. and the axes inclined to the V.P. but parallel to the H.P. Determination of the true length of a line when inclined to both planes of H.P. references, e.g., the slant edges of a pyramid.

Development of the surface of a common solid. Section planes representation of the V.T. and H.T. sections of solids in simple positions, e.g. the cube prism and true shape of sections. The section planes are to be parallel or inclined to one plane or reference only. Development of the surface of the out solids.

5. *Isometric and Oblique Drawings* :

Woodwork joints—Mortice and tenon and dovetail. Representation of cylinders single or in combination and modification of cylinders e.g., Pipe with flange, cams.

**Part 2** *To be assessed internally by the school.*

**Practical Work in Technical Drawing**

(A) **Course Work**

(1) Candidates will be required to do workshop practice in

Woodwork or Metalwork. They may also undertake practical work on any of the topics suggested below. The practical work of the candidates will be assessed by the teacher as course work. The teacher is free to assess the course work either on the basis of continuous assessment or on the basis of periodical tests.

(2) Suggested topics for practical work :

(i) **Woodwork** : housed joint, dovetail joint, mortice and tenon joint, dovetail and teehalving joint, bridle joint and their use in the construction of specified models. The proper use of nails, screws or glue in assembling a model.

(ii) **Metalwork** : Operations such as wire bending, sheet work, filing, drilling, punching, chipping, sawing rivetting, soldering and forging.

**(B) Finished Work**

In addition to the course work the candidates will have to produce *four* pieces of finished Woodwork or Metalwork for the assessment by the *Visiting Examiner.* These pieces of Woodwork or Metalwork may be based on the topics listed in (A) (2) above or taken from any other aspect of Woodwork or Metalwork.

**(C) Assessment :**

(i) The teacher and the Visiting Examiner will assess the practical work of the candidates on impression by creating *three* groups ; isolating the *best work* and the *worst work.* The middle group will then be subdivided into the best, middle and worst so as to form *five* groups.

(ii) While placing the candidates in the various groups the following aspects of practical work should be taken into consideration :

(i) Correct use of material and its preparation

(ii) Marking-out procedure and check on definite sizes

(iii) Details of construction, joints, etc.

(iv) Skill in the use of tools and materials

(v) Surface finish and application of finishes, polish, etc.

Other aspects may also be considered depending on the nature of the practical work.

(iii) Candidates in the five groups should then be given marks in accordance with the table given below using the full range in each group as far as possible :

| | | | | |
|---|---|---|---|---|
| A | between | 41 | and | 50 |
| B | " | 31 | " | 40 |
| C | " | 21 | " | 30 |
| D | " | 11 | " | 20 |
| E | " | 0 | " | 10 |

## (VIII) HOME SCIENCE

**Part 1** *External Examination.*

**Aims :**

The Home Science course is suitable for both boys and girls. It aims to develop a sense of responsibility and consideration for other people in the family and the community.

The course encourages thought, enquiry, research, evaluation, discrimination and insight into choosing and running a home, nutrition and meal planning, money management and consumer guidance.

Pupils are encouraged to use the variety of information and assistance available to the public, and the course should be supplemented wherever possible by visits and relevant film, radio and TV presentations.

There will be *one* written paper of **two** hours.

**Section A** will consist of questions requiring short answers and will cover the whole syllabus. There will be no choice of questions.

**Section B** will consist of essay-type questions. Candidates will be required to answer *four* questions. There will be a choice of questions.

### Syllabus

1. Choosing a home : cost, mortgage, insurance, rent, rates. Services provided by the rates.

2. Gas, electricity and water in the home. The safe and economical use of gas and electrical appliances. Fuses and plugs. Reading meters.

3. Methods of heating and cooling a home and the domestic hot and cold water supply. Uses off various fuels. Insulation. Air pollution. Methods of ventilation in the home.

4. Removal of all domestic waste. Treatment of sinks, toilets, waste bins and dust bins. Waste disposal units.

5. Furnishing the home. Care and cleaning of the house and its contents. Care and preservation of wooden furniture and fixtures. Kitchen planning and choice of equipment. Economy of labour and efficient use of time.

6. Budgeting, including credit buying and hire purchase. Methods of saving. Consumer guidance and Consumer Associations.

7. Nutrition including meal planning for all members of the family. Special nutritional requirements for young children, adolescents, old people, invalids, convalescents and vegetarians, and in cases of obesity, anaemia and pregnancy. Economical shopping. Catering for all other family requirements. Basic cookery skills and methods. Food hygiene, storage and preservation. Sources of foods in everyday use.

8. Care of clothing. Laundering of synthetic and natural fibres in everyday use. Hard and soft water. Use of modern detergents, soap powders and cleaning agents. Use and care of home laundry equipment. Use of laundries and launderettes.

9. Safety precautions in the home. Simple first-aid. Personal hygiene.

10. Care of the elderly and the under 5's, and the availability of of social services concerned with their welfare.

**Part 2** *To be assessed internally by the school.*

**Practical Work in Home Science**

(A) **Course Work**

(1) Candidates will be required to practise one or more aspects of household work or cookery or care of clothing. They may also undertake practical work on any of the topics suggested below. The practical work produced by the candidates will be assessed by the teacher as course work. The teacher is free to assess the course work either on the basis of continuous assessment or on the basis of periodical tests.

(2) Suggested topics for practical work :

(i) **Household work :** Use and care of household equipment such as kitchen utensils, sitting-room furniture-furnishings, bedroom furniture, bathroom fittings, etc.

(ii) **Cookery :** Cooking processes ; boiling, frying, steaming, grilling, baking, stewing etc. Planning and preparation of meals for various occasions.

(iii) **Care of clothing :** laundering, dry cleaning, use of detergents.

(iv) Simple *first aid* in the home.

**(B) Final Test :**

In addition to the course work the candidate will be tested in one or more aspects of household work or cookery or care of clothing by the Visiting Examiner.

**(C) Method of Assessment :**

(1) The teacher and the Visiting Examiner will assess the work of the candidates by creating three groups ; isolating the *best work* and the *worst work*. The middle group will then be subdivided into the best, middle and worst so as to form *five* groups.

(2) While placing the candidates in the various groups the following aspects of practical work should be taken into consideration

(a) **Household Work**

(i) Cleanliness of furniture and utensils

(ii) Arrangements in the home

(b) **Cookery :** Planning and efficiency in various aspects of cookery. Presentation of cooked food.

(c) **Care of Clothing :** Various aspects of washing and dry cleaning depending on the fibres.

Other aspects may also be considered depending on the nature of the practical work.

(3) Candidates in the five groups should then be given marks in accordance with the table given below using the full range in each group as far as possible :

| | | | | |
|---|---|---|---|---|
| A | between | 41 | and | 50 |
| B | " | 31 | " | 40 |
| C | " | 21 | " | 30 |
| D | " | 11 | " | 20 |
| E | " | 0 | " | 10 |

## (IX) COOKERY

**Part 1** *External Examination.*

There will be *one* paper of *two* hours.

The paper is divided into two Sections, A and B.

**Section A** will consist of short answer questions covering the whole syllabus. There will be no choice of questions.

**Section B** will consist of essay type questions. There will be a choice of questions. Candidates will be required to answer *four* questions.

### Syllabus

1. The nutritive value of foods.

2. Basic methods of cookery, i.e. boiling, steaming, stewing, baking, frying, grilling, and the principles involved.

3. Methods of preparing and cooking food to preserve nutritive properties and to improve flavour.

4. Physical changes in food during cooking.

5. Choice and cost of seasonable foods. The merits and intelligent use of convenience foods, such as tinned, packaged, frozen or processed foods.

6. The planning, preparation and serving of meals for a family, including foods suitable for infants and invalids. Foods for special occasions, such as festivals : packed meals and snacks.

7. The preserving of fruit and vegetables ; storing of garden produce.

8. Planning and care of food stores and kitchen. Personal and kitchen hygiene. Safety in the kitchen.

9. The merits, use and care of various types of kitchen equipment and utensils.

N.B. The economical use of food, equipment, fuel and labour should be stressed throughout and candidates should be made aware of any new processes and equipment to keep up to date as the course proceeds.

**Part 2** *To be assessed internally by the school.*

**Practical Work in Cookery**

**(A) Course Work**

(1) Candidates will be required to do practical work in one or more aspects of cookery. The practical work done by the candidates will be assessed by the teacher as course work. The teacher is free to assess the course work either on the basis of continuous assessment or on the basis of periodical tests.

(2) Suggested topics for practical work :

(i) Cooking processes : boiling, frying, steaming, baking, grilling, stewing.

(ii) Planning and preparation of meals for different types of people or different occasions.

(iii) Mixing and baking bread, cakes, patties etc.

(iv) Practice in the preparation of salads, pickles, juices, puddings, sweets, biscuits, etc.

(v) Mixing and making chapatis, nans, puris, etc.

**(B) Final Test :** In addition to the course work the candidates will be tested in the planning and preparation of *a meal* by the Visiting Examiner.

**(C) Method of Assessment :**

(1) The teacher and the Visiting Examiner will assess the practical work of the candidates by creating *three* groups ; isolating the *best work* and the *worst work*. The *middle* group will then be subdivided into the best, middle and worst so as to form *five* groups.

(2) While placing the candidates in the various groups the following aspects of practical work should be taken into consideration :

(i) General efficiency in planning and working.

(ii) Manipulation of utensils, foods, etc.

(iii) Quality of the food produced.

(iv) Appearance and arrangement.

Other aspects may also be considered depending on the nature of the practical work.

(3) Candidates in the five groups should then be given marks in accordance with the table given below using the full range in each group as far as possible :

| | | | | |
|---|---|---|---|---|
| A | between | 41 | and | 50 |
| B | " | 31 | " | 40 |
| C | " | 21 | " | 30 |
| D | " | 11 | " | 20 |
| E | " | 0 | " | 10 |

## (X) NEEDLEWORK

**Part 1** *External Examination.*

There will be *one* paper of *two* hours.

The paper is divided into two Sections, A and B.

**Section A** will consist of short answer questions covering the whole syllabus. There will be no choice of questions.

**Section B** will consist of essay-type questions. There will be a choice of questions. Candidates will be required to answer **four** questions.

### Syllabus

1. A simple study of natural and synthetic fibres—origin, properties and how they are produced.

A brief outline of the manufacture of fibres in fabrics ; finishes which improve the properties and appearance of fabrics.

Knowledge of various types of fabrics (including blended fabrics) their choice and suitability for dressmaking and reaction under normal use.

2. The purchase of fabrics ; approximate prices and *estimation* of quantities.

The selection and use of *supplementary* materials used in the course of dressmaking.

3. Choice of clothes for the individual (of *any* age) in relation to figure types, style, occasion, colour, fabrics and *climatic condition.*

4. The choice, purchase, use and care of tools and equipment, including sewing machines, and for dressmaking.

5. The choice and use of traditional or drafted or commercial patterns for making simple under and outer garments. This should include knowledge of figure measurements, awareness of figure problems, simple adaptation of patterns, layouts and cutting out, fitting, and sequence of processes in assembling garments.

Methods of pressing.

6. The stitches and processes used in the making of simple under and outer garments.

7. The use and making of simple or traditional designs and decorative stitchery in the construction and decoration of garments and articles.

Part 2 *To be assessed internally by the School.*

**Practical Work in Needlework**

(A) **Course Work**

(1) Candidates will be required to practise needlework. They may also undertake practical work on any of the topics suggested below. The practical work done by the candidates will be assessed by the teacher as course work. The teacher is free to assess the course work either on the basis of continuous assessment or on the basis of periodical tests.

(2) Suggested topics for practical work :

(i) **Needlework tools and processes :**
—Measuring and marking devices
—Use of scissors, needle and thread
—Sewing buttons, hooks and eyes, zippers
—Use of the sewing machine
—Practice in various kinds of stitches, making seams, darts, pleats, gathering, shirring, smocking, ruffles, etc.

(ii) **The parts of a dress :**
—Necklines and collars
—Sleeves and cuffs
—Waistline and skirts
—Pockets; inside and outside
—Buttons and button holes
—Visible and invisible zippers.

(iii) Making dresses, blouses, skirts, salwar kamiz, etc.

(iv) Sewing for the home : curtains, bedspreads, furnishings

(v) Sewing of children's clothes.

(B) **Finished Work**

In addition to the course work the candidates will have to produce *two* dresses or combinations or a set consisting of *four* pieces of finished needlework for the assessment by the Visiting Examiner.

(C) **Assessment**

1. The teacher and the Visiting Examiner will assess the work of the candidates by creating *three* groups ; isolating the *best work*

and the *worst work*. The middle group will then be subdivided into the best, middle and worst so as to make *five* groups.

2. While placing the candidates in the various groups the following aspects of practical work should be taken into consideration :

(i) Suitability and choice of fabrics.
(ii) Style and colour of garments, household furnishings, etc.
(iii) Competence in interpreting, adapting and using a pattern.
(iv) Suitability of method in relation to the material and purpose of the garments.
(v) Technical skill shown in sewing by hand designing, machining, pressing and fitting.

Other aspects may also be considered depending on the nature of the practical work.

3. Candidates in the five groups should then be given marks in accordance with the table given bellow using the full range in each group as far as possible :

| | | | | |
|---|---|---|---|---|
| A | between | 41 | and | 50 |
| B | " | 31 | " | 40 |
| C | " | 21 | " | 30 |
| D | " | 11 | " | 20 |
| E | " | 0 | " | 10 |

## (XI) A MODERN FOREIGN LANGUAGE

**Part 1** *External Examination.*

Papers will be set in French, Spanish or other foreign languages on request.

A special paper fee will have to be paid.

There will be *one* paper of *two* hours.

For syllabus please refer to "Modern Foreign Languages" Paper 1 page 5 of this booklet.

**Part 2** *To be assessed internally by the school*

**Practical Work in Modern Languages**

**(A) Course Work**

(1) Candidates will be required to practise their ability to speak the language by exercises in reading aloud, conversation and oral comprehension. This practice will be assessed by the teacher as course work. The teacher is free to assess the course work either on the basis of continuous assessment or on the basis of periodical tests.

(2) **Suggested Practical (oral) Work :**

(i) **Reading** : The candidate may be asked to study a prose passage in the foreign language for five minutes, and then *read it aloud.*

(ii) **Conversation** : The candidate should be made to converse with the teacher for five minutes in the foreign language on easy topics of everyday life.

(iii) **Oral Comprehension** : The teacher should read a short story or passage and ask questions, the candidate being required to answer the questions to test his/her ability to understand the spoken word in the foreign language.

(iv) **Prepared Talk** : The candidates should be made to talk for five minutes on a given topic or situation prepared before-hand. The candidates will then answer four or five questions of the teacher on the matter of the topic or situation.

(B) **Final Test:**

In addition to the course work the candidates will be tested by the Visiting Examiner in their proficiency to speak the foreign language by tests in the form suggested in A (2) above.

(C) **Assessment**

(1) The teacher and the Visiting Examiner will assess the oral work of candidates and place them in *three* groups ; isolating the *best* and the *worst*. The group in the middle will then be subdivided into the best, middle and worst, so that *five* groups are formed.

(2) In placing the candidates in the various groups the following aspects or oral proficiency in the foreign language should be taken into consideration :

(i) **Reading** : Pronunciation, intonation and phrasing.

(ii) **Conversation** : Comprehension of questions, range of vocabulary, expression of ideas and grammatical accuracy.

(iii) **Prepared Talk** : As in (i) and (ii) above.

(3) Candidates in the five groups will then be given marks in accordance with the table given below using the full range in each group as far as possible.

| | | | | |
|---|---|---|---|---|
| A | between | 41 | and | 50 |
| B | „ | 31 | ” | 40 |
| C | „ | 21 | ” | 30 |
| D | „ | 11 | ” | 20 |
| E | „ | 0 | ” | 10 |

## (XII) A CLASSICAL LANGUAGE

**Part 1** *External Examination*

Papers will be set in Sanskrit and other Classical Languages on request.

A special paper fee will have to be paid.

### SANSKRIT

There will be *one* paper of *two* hours consisting of the following tests :

(a) Questions on elementary Sanskrit Grammar.

(b) Unprepared translation from English into Sanskrit consisting of short prose sentences.

(c) Unprepared translation from Sanskrit into English.

**Part 2 :** *To be assessed internally by the School.*

**Practical Work in Classical Languages**

**(A) Course Work**

(1) Candidates will be required to practise their ability to speak the language by exercises in reading aloud, conversation and oral comprehension. This practice will be assessed by the teacher as course work. The teacher is free to assess the course work either on the basis of continuous assessment or on the basis of periodical tests.

(2) **Suggested Practical (oral) Work :**

(i) **Reading :** The candidate may be asked to study a prose passage in the classical language for five minutes, and then to read it aloud to the teacher.

(ii) **Conversation :** The candidate will be required to converse with the teacher for five minutes in the classical language on easy topics of everyday life.

(iii) **Oral Comprehension :** The teacher will read a short story or passage in the classical language and ask questions, the candidate being required to answer the questions to test his/her ability to understand the spoken word in the classical language.

**(B) Final Test**

In addition to the course work the candidates will be tested by the *Visiting Examiner* in their proficiency to speak the classical language by tests in the form suggested in A (2) above.

**(C) Assessment :**

(1) The teacher and the Visiting Examiner will assess the oral work of candidates and place them in *three* groups ; isolating the *best* and the *worst.* The group in the middle will then be subdivided into the best, middle and worst, so that *five* groups are formed.

(2) In placing the candidates in the various groups the following aspects should be taken into consideration :

(i) **Reading** : Pronunciation, intonation and phrasing.

(ii) **Conversation** : Comprehension of questions, range of vocabulary, expression of ideas and grammatical accuracy.

(iii) **Oral Comprehension** : As in (i) and (ii) above.

(3) Candidates in the five groups will then be given marks in accordance with the table given below using the full range in each group as far as possible.

| | | | | |
|---|---|---|---|---|
| A | between | 41 | and | 50 |
| B | " | 31 | " | 40 |
| C | " | 21 | " | 30 |
| D | " | 11 | " | 20 |
| E | " | 0 | " | 10 |

## (XIII) PHYSICAL EDUCATION

**Aims :**

(i) To create awareness of the necessity for organic vigour and efficiency through physical fitness ;

(ii) To develop knowledge and understanding of the requirements for healthy living, nutrition, exercise and relaxation ;

(iii) To create awareness of the necessity to develop good posture and physical poise ;

(iv) To develop knowledge and understanding of skills that will be useful as leisure time activities and those of a recreational nature ;

(v) To create opportunities to develop esprit de corps, courtesy, sportsmanship, social skills, democratic conduct and ideals ;

(vi) To develop appreciation of the aesthetic and cultural aspects of movement.

### EXAMINATION

The subject will be examined as follows :—

**Part I** — One written paper of *two* hours.

**Part II** — Practical Examination.

### WRITTEN PAPER (*100 Marks*)

The syllabus for the written paper is divided into two sections, Section A and Section B.

**1. Section A** — *Human Biology, Health and Hygiene*—will consist of short answer questions on the following :

(a) **The body and how it works:**

(i) *Basic organisation*—Cells, tissues, organs, organ system. (cell details only as far as can be seen through a school microscope).

(ii) *Movement and support*—Function of skeleton, structure related to function of bones (including bone-marrow), cartilage, ligaments, tendons, muscles, joints, part played by nerves and blood in maintaining muscular action (voluntary and involuntary).

(iii) *Respiration*—Structure and function of respiratory system. Mechanism of breathing, including artificial maintenance. Tissue respiration—energy release, ADP/ATP, aerobic and anaerobic, lactic acid and oxygen debt.

(iv) *Circulation*—Main features of the heart and its circulatory system, arteries, veins, capillaries, lymphatics (only names required of the blood vessels of the liver and kidney and those entering and leaving the heart). Composition and functions of blood. Blood groups A, B, AB, O and Rh. Outline only in change and composition of blood as it passes through the wall of the small intestine, the liver, the lungs, muscles, kidney and skin.

(v) *Feeding* — Food constituents — carbohydrates, fats, proteins, mineral salts, minerals, roughage, water. Source of food constituents—the sun as a source of man's energy, simple food chains. Principles of food handling, storage and preservation. Digestion, including dentition and tooth structure. Absorption and utilisation of food, including storage. Dietary requirements in man. Metabolism, energy content of food.

(vi) *Excretion*—The excretion of waste material by the lungs, the skin. Control of heat loss : area/volume ratio. Hair and nails as outgrowths of skin. The general structure of the urinary system. The liver as an excretory organ.

(vii) *Sensitivity and Co-ordination*—Outline of nervous system—brain, spinal cord, sense organs. The sense of sight, hearing, smell, taste, touch and balance. Detailed structure of the eye and the ear and simple experiments of taste and touch. The reflex arc, conditional reflexes.

(b) **Health and Hygiene**

(i) *Personal Health*—Personal cleanliness. Oral hygiene. Principles of diet with reference to teeth, slimming and obesity. Correct posture. Exercise. Recreation. Foot care. Sleep requirements. Dangers of misuse of drugs, including alcohol and smoking.

(ii) *Diseases, defects and injury*—Causes of diseases, bacteria, viruses, fungi, protozoa. Vaccination and antibiotics, disinfectants and antiseptics. Spread of bronchitis, pneumonia, TB, VD, malaria, ringworm, athletes foot through contact, droplet infection, flies and other insects. Arthritis, rhuematism and heart disease.

(iii) *Community Health*—Dangers from gas, electricity, fire, poisoning and accidents.

(c) **First-Aid**

Treatment of cuts and abrasions. Application of splints.

Treatment of sprains, cramps and cases of drowning.

2 **Section B**—Candidates will be required to answer questions on the rules, analysis of skills required for the successful performance and the methods of fitness training of any **two** of the following team games of their choice :

Cricket, football, hockey, basketball, volleyball, softball.

## PRACTICAL EXAMINATION (*100 marks*)

Practical work will be assessed in **two** parts as follows :

(i) Assessment by the teacher(s) (ii) Assessment by a Visiting Examiner.

**1. Work to be assessed by teacher(s)—50 marks**

The skill and performance of thee candidates will be assessed by the teacher(s), responsible to prepare the candidates for the examination, in **two** of the following games and activities of their choice :

Athletics, cricket, hockey, football, volleyball, softball, basketball, tennis, badminton, swimming, dancing, gymnastics, yoga, boxing, wrestling, judo and karate.

**2. Work to be assessed by the Visitting Examiner—50 marks**

The Visiting Examiner will be appointed locally with the approval of the Council. The assessment of the work of the candidates by the Visiting Examiner will be in **two** parts :

(i) Physical efficiency tests

(ii) Specialisation tests.

## 3. PHYSICAL EFFICIENCY TESTS

The following tests to evaluate the physical fitness of candidates will be organised and conducted in the presence of the Visiting Examiner. Tests 1 to 3 should be carried out on *one* day and 4 to 6 on the next.

(a) **Test 1**

50 metre run. Standing start. Timings to be taken to the nearest tenth of a second (weather should be relatively windless without extremes of temperature).

(b) **Test 2**

Standing long jump. A flat non-slip surface should be used. The candidate should stand with toes just behind the take-off line and jump when ready. After making a preliminary swing with the arms the candidate swings them forward vigorously, springing with both feet simultaneously to land as far forward as possible. Distance jumped to be measured in centimetres.

(c) **Test 3**

Distance run—1000 metres run for boys, 600 metres run for girls. Time to be taken to the nearest second.

(d) **Test 4**

(i) Floor push-ups for boys. The boy takes a front-leaning position with body supported on hands and balls of feet ; the arms are straight and at right angles to the body. He then dips or lowers the body so that the chest touches or nearly touches the floor, then pushes back to the starting position by straightening the arms and repeats the procedure as many times as possible. Only the chest should touch the floor ; the arms must be completely extended with each push-up ; the body must be held straight throughout. Scoring consists of the number of correct push-ups.

(ii) Push-ups for girls—This is executed from a stall bar bench or a stool 32 cm high by 50 cm long and 35 cm wide. It should be placed on the floor about 15 cm from a wall so that subjects will not take a position too far forward. The girl should grasp the outer edges of the bench—or stool at the nearest corners and assume the front-leaning rest position, with the balls of her feet on the floor and with

her body and arms forming a right angle. She should then lower her body so that the upper chest touches the near edge of the bench or stool, then raise it to a straight arm position as many times as possible. The girl's body should be held straight throughout. If the body sways or arches, or if the subject does not go completely down or does not push completely up, half credit is given up to 4 half credits.

(e) **Test 5**

Shuttle run. A flat course of 10 metres is required to be measured between two parallel base lines. Behind each base line a semicircle 50 cm. radius with centre on the base line is required to be marked. In the far semicircle two wooden blocks (5×5×5 cm.) are to be placed. The candidate stands with feet behind the base line, and on a signal, runs to the far line, picks up one block which the candidate places in the starting semicircle when he/she returns. The candidate then repeats the procedure with the second block. The time to the nearest tenth of a second is to be taken till the second block is grounded in the starting semicircle.

(f) **Test 6**

30 second sit-ups. The candidate lies with his/her back on a mat or flat surface, feet about 30 cm apart and knees flexed at a right angle. The candidate's hands with fingers interlocked are placed behind the back. A partner holds the candidate's feet in contact with the mat or floor. On the signal "Go" the candidate sits up to touch the knees with his/her elbows. Without pause he/she returns to his/her starting position and immediately sits up again. The number of sit-ups completed in 30 seconds are to be counted.

## 4. SPECIALISATION TESTS

Candidates will be tested in the presence of a Visiting Examiner, in one of the following activities listed below: (a) Athletics (b) Gymnastics (c) Swimming (d) Dancing (e) Yoga.

(a) **Athletics**—The candidates will choose any *two* of the following events in which they wish to be tested :

(i) Track events—

Boys—100 m, 200 m, 400 m, 800 m and 1500 m.

Girls—50 m, 100 m, 200 m and 800 m.

(ii) Field events—

Boys—long jump, high jump, hop step and jump, pole vault, shot put, discus and javelin throw.

Girls—Long jump, high jump, shot put (8 lbs) and throwing the soft-ball.

(b) **Gymnastics**—The candidates will be tested in *four* exercises using any *two* of the following apparatus of their choice :

(i) Ground/mat work

Boys—Front roll, back roll, cartwheel, head spring, hand spring, hand stand, somersault.

Girls—Ballet, flexibility and agility movements—the front split, the pirouette, the toe stand, the ballet touch, the body sweep, the arabesque, the single-leg balance, the balance ; front roll, back roll, cartwheel.

(ii) The balance beam—(girls only)

Mounts—The straight arm support mount, the squat mount, the one knee mount, the crotch seat mount. Poses and Movements—walking the beam, the pivot, the pirouette turn, jumping on the beam. Dismounts —the side-seat dismount, the front vault dismount.

(iii) Parallel bars

Boys—The straight arm support, the straddle seat, the back roll to a straddle seat, the shoulder balance, the single-leg flank dismount, the double-leg flank dismount.

Girls—The straight arm support, swinging, the straddle seat, the forward roll.

(iv) Vaulting Horse

Boys—The side vault, the through vault, the straddle vault, the head spring vault. High horse—the side vault, the through vault, the straddle vault. Long horse—the through vault, the straddle vault.

Girls—The side vault, the squat stand dismount, the straddle vault, the straddle stand, the head-spring vault.

(v) Horizontal bar—(boys only)

Upward swing and dismount, swinging to mount and dismount, swinging and changing hands to face opposite direction.

(c) **Swimming**—The candidates will be tested in any *two* of the following of their choice.

Boys—Free style—50 m, 100 m, 200 m, and 400 m :
breast stroke—50 m, 100 m ;
back stroke—50 m, 100 m ;
butterfly stroke—50 m, 100 m ;
Diving—standing one-leg dive, standing semi-crouch dive, standing stationary dive, the front jump dive from the spring board.

Girls—Free style—40 m, 100 m and 200 m ;
breast stroke—50 m, 75 m ;
back stroke—50 m, 75 m ;
butterfly stroke—50 m, 75 m ;
Diving—standing one-leg dive, standing semi-crouch dive, standing stationary dive, the front jump dive from the spring board.

(d) **Dancing**—The candidates will be required to give a performance of any *two* of the following dances/movements, of their choice, with suitable accompaniment :

(i) Combination of dance movements and ground-mat work.

(ii) Indian dancing—Bharatanatyam, Kuchipudi, Kathakali, Kathak, Manipuri, Bhangra, any other folk dance.

(iii) Western dancing—ballet ; ballroom dancing—waltz, foxtrot, tango, samba, charleston, square dancing ; pop-dancing—jitterbug, twist, rock and roll.

(e) **Yoga**—The candidates will be tested in any *four* of the following asanas.

Ugrasan, dhamrekhasan, singhasan, ultanmandhukasan, kukutasans, naunli, kapala, Bhathi, shavasan, shirashasan, shalabhasan, bakasan and mayurasan.

## METHOD OF ASSESSMENT BY THE TEACHER(S)

The teacher (s) will assess the candidate's skill and performance in the two games and activities of their choice. They will mark the candidates out of 50 marks as follows :

| | *Marks* |
|---|---|
| (a) Achievement of skills and performances | 30 |
| (b) Attendance | 5 |
| (c) Participation in voluntary and intramural activities | 10 |
| (d) Representation of the School at different levels—Inter-school, District, State | 5 |

**Achievement of skills and performances**

In assessing the achievement of skills and performances the following factors should be considered :

| (a) **Team games** (See para 2. Section B, Page 108) | *Marks* |
|---|---|
| (i) Ability in fundamental skills | 15 |
| (ii) Ability in a particular skill | 5 |
| (iii) Utilisation of fundamental skills during a game | 5 |
| (iv) Offensive and defensive skills | 5 |

(b) **Athletics**

The actual performance of the candidate should be tested in the events chosen by him/her and assessed according to the five-point grading system given below :

| | *Marks* |
|---|---|
| A—Excellent | 26—30 |
| B—Very Good | 21—25 |
| C—Good | 16—20 |
| D—Average | 11—15 |
| E—Below Average | 10 and below |

(c) **Swimming**

| | |
|---|---|
| (i) Ability in basic skills, e.g. breathing, floating, arm movements, combined elementary movement, changing body positions and directions and treading water. | 15 |
| (ii) Ability in stroke skills | 5 |
| (iii) Ability in diving skills | 5 |
| (iv) Speed and endurance | 5 |

| (d) **Dancing** | *Marks* |
|---|---|
| (i) Ability to keep rhythm | 10 |
| (ii) Expression and grace of movements | 8 |
| (iii) Ease of performance | 8 |
| (iv) Endurance | 4 |

| (e) **Gymnastics** | | *Marks* |
|---|---|---|
| (i) | Willingness to perform | 5 |
| (ii) | Knowledge of the sequence and performance of an exercise | 15 |
| (iii) | Form, grace and ease of performance | 5 |
| (iv) | Landing or recovery technique | 5 |

| (f) **Boxing, Wrestling, Judo and Karate** | | *Marks* |
|---|---|---|
| (i) | Courage, confidence, self-reliance and endurance | 10 |
| (ii) | Foot work/holds | 4 |
| (iii) | Offensive techniques | 8 |
| (iv) | Defensive techniques | 8 |

| (g) **Yoga** | | *Marks* |
|---|---|---|
| (i) | Ability to assume the posture/activity | 10 |
| (ii) | Knowledge of the sequence for the final pose/activity | 10 |
| (iii) | Perfection in posture/activity with grace and poise | 5 |
| (iv) | Performing a post activiity with ease and maintaining for a lenigth of time with relaxation | 5 |

## METHOD OF ASSESSMENT BY THE VISITING EXAMINER

**Physical Efficiency Tests**

The Visiting Examiner will assess the performance of the candidates in the physical efficiency tests in accordance with the Performance Table at Appendix A attached. He will mark the candidates out of 30 marks based on his assessment.

**Specialisation Tests**

The Visiting Examiner will assess the performance of the candidates in the activity which they have chosen for specialisation (See para 4, Page 110-112) out of 20 marks. The basis of his assessment for each activity is given in the ensuing paragraphs.

**Athletics**

The candidates will be assessed in their performance in any two of the events of their choice as given in the syllabus, in accordance with the Table attached as Appendix B.

**Gymnastics**

The candidates will be assessed in their performance in *four* exercises, to be nominated by the Visiting Examiner, using any two apparatus of the candidates' choice. The Visiting Examiner will give marks for each exercise as follows :

| Grade | *Marks* |
|---|---|
| (a) Perfect performance in form, grace and timing | 5 |
| (b) Satisfactory performance except for minor faults in form and timing | 4 |
| (c) Performance with poor form, e.g. bent knees and toes not pointed | 3 |
| (d) No form or grace but there is knowledge of performance of the exercise | 2 |
| (e) An attempt to perform | 1 |

**Swimming**

The candidates will be assessed in any *two* of the events of their choice in accordance with the table given at Appendix C attached.

**Dancing**

The candidates will be assessed in *two dance* performances of their choice as given in the syllabus. The Visiting Examiner will mark them on each performance as follows :—

| Qualities | *Marks* |
|---|---|
| (a) Knowledge of the steps/poses | 4 |
| (b) Grace and poise | 2 |
| (c) Rhythm and timing | 2 |
| (d) Endurance | 2 |
| Total | 10 |

**Yoga**

The candidates will be assessed in any *four* of the asanas given in the syllabus, to be nominated by the Visiting Examiner. The

Visiting Examiner will mark the candidates in each asanas as follow :

| Grade | *Marks* |
|---|---|
| (a) Perfect performance | 5 |
| (b) Satisfactory performance with minor errors in form | 4 |
| (c) Performance with poor form | 3 |
| (d) No form but there is knowledge of how to perform the asana | 2 |
| (e) Poor form and knowledge of performance | 1 |

Appendix A

## PERFORMANCE TABLE — PHYSICAL EDUCATION — PHYSICAL EFFICIENCY TESTS

| Marks | Test No. 1 50 m dash (Timing in seconds and tenths) | | Test No. 2. standing long jump (Distance in cm) | | Test No. 3. Distance run (Timings in min. and s) | | Test No. 4. Push-ups (Numbers) | | Test No. 5. Shuttle run (Timings in s and tenths) | | Test No. 6. 30 s sit-ups (Numbers) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Boys | Girls | Boys | Girls | Boys 1000 m | Girls 600 m | Boys | Girls | Boys | Girls | Boys | Girls |
| 5 | 7·3 | 7·7 | 179 | 164 | 4 min 10 s | 2 min 30 s | 24 | 20 | 10·4 | 11·0 | 22 | 15 |
| 4 | 7·8 | 7·9 | 172 | 152 | 4 min 35 s | 2 min 50 s | 16 | 12 | 10·7 | 11·3 | 20 | 13 |
| 3 | 7·8 | 8·3 | 165 | 147· | 5 min | 3 min 10 s | 10 | 6 | 11·0 | 11·6 | 18 | 11 |
| 2 | 8·0 | 8·5 | 158 | 140 | 5 min 40 s | 3 min 40 s | 6 | 3 | 11·3 | 11·9 | 16 | 9 |
| 1 | 8·3 | 9·0 | 150 | 130 | 6 min 20 s | 4 min 10 s | 3 | 1 | 11·7 | 12·2 | 13 | 6 |

*Note : For timings and distances in between or lower than those indicated in the table the lower mark should be given.

Appendix B

## PERFORMANCE TABLE — PHYSICAL EDUCATION — SPECIALISATION TESTS
## ATHLETICS — TRACK EVENTS

| Marks | 50 m (s and tenths) | 100 m (s and tenths) | | 200 m (s and tenths) | | 400 m (s and tenths) | 800 m (min and s) | | 1500 m (min and s) |
|---|---|---|---|---|---|---|---|---|---|
| | Girls | Boys | Girls | Boys | Girls | Boys | Boys | Girls | Boys |
| 10 | 7·3 | 13·0 | 15·5 | 26·5 | 31·0 | 57·0 | 2:25 | 2:55 | 5:10 |
| 9 | 7·5 | 13·2 | 15·7 | 27·0 | 31·5 | 58·0 | 2:30 | 3:00 | 5:15 |
| 8 | 7·6 | 13·3 | 16·0 | 27·3 | 32·0 | 59·0 | 2:34 | 3:04 | 5:20 |
| 7 | 7·7 | 13·5 | 16·2 | 27·5 | 32·5 | 60·0 | 2:36 | 3:06 | 5:25 |
| 6 | 7·8 | 13·6 | 16·5 | 27·7 | 33·0 | 61·0 | 2:38 | 3:08 | 5:30 |
| 5 | 7·9 | 13·7 | 16·7 | 28·0 | 33·5 | 62·0 | 2:40 | 3:10 | 5:35 |
| 4 | 8·0 | 14·6 | 17·0 | 28·5 | 34·0 | 63·0 | 2:42 | 3:12 | 5:40 |
| 3 | 8·1 | 15·1 | 17·5 | 29·0 | 34·5 | 63·5 | 2:44 | 3:16 | 5:45 |
| 2 | 8·2 | 15·5 | 18·0 | 29·5 | 35·0 | 64·0 | 2:46 | 3.20 | 5:50 |
| 1 | 8·4 | 16·0 | 18·5 | 30·0 | 35·5 | 64·5 | 2:48 | 3:30 | 6:00 |

***Note** : For timings in between or lower than those indicated in the table the lower mark should be given.

## PERFORMANCE TABLE — PHYSICAL EDUCATION — SPECIALISATION TESTS

## ATHLETICS — FIELD EVENTS

(All measurements in metres and centimetres)

| Marks | Long jump (m and cm) | | High jump (m and cm) | | Hop step and jump (m and cm) | Pole vault (m and cm) | Shot put (m and cm) | | Discus throw (m and cm) | Javelin throw (m and cm) | Soft-ball throw (m and cm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Boys | Girls | Boys | Girls | Boys | Boys | Boys | Girls | Boys | Boys | Girls |
| 10 | 5·30 | 4·40 | 1·60 | 1·30 | 10·75 | 3·00 | 9·50 | 8·00 | 25·00 | 36·00 | 32·00 |
| 9 | 5·15 | 4·35 | 1·50 | 1·28 | 10·35 | 2·97 | 9·40 | 7·85 | 24·75 | 35·50 | 30·00 |
| 8 | 5·00 | 4·30 | 1·40 | 1·26 | 9·95 | 2·95 | 9·30 | 7·70 | *24·50* | *35·00* | *28·80* |
| 7 | 4·85 | 4·25 | 1·30 | 1·24 | 9·55 | 2·90 | 9·20 | 7·60 | 24·25 | 34·50 | 27·80 |
| 6 | 4·70 | 4·10 | 1·25 | 1·20 | 9·15 | 2·85 | 9·10 | 7·50 | 24·00 | 34·00 | 26·80 |
| 5 | 4·55 | 3·95 | 1·20 | 1·16 | 8·75 | 2·80 | 9·00 | 7 25 | 23·50 | 33·50 | 25·80 |
| 4 | 4·40 | 3·80 | 1·18 | 1·12 | 8·25 | 2·70 | 8·75 | 7·00 | 23·00 | 33·00 | 24·80 |
| 3 | 4·25 | 3·65 | 1·16 | 1·08 | 7·75 | 2·50 | 8·50 | 6·50 | 22·50 | 32 00 | 24·30 |
| 2 | 4·10 | 3·50 | 1·12 | 1·04 | 7·10 | 2·25 | 8·00 | 6·00 | 22·00 | 31·00 | 23·30 |
| 1 | 3·95 | 3·35 | 1·08 | 1·00 | 6·50 | 2·00 | 7·50 | 6·00 | 21·50 | 30·00 | 22·80 |

***Note ; For** distances in between or lower than those indicated in the table the lower mark should be given.

Appendix C

## PERFORMANCE TABLE — PHYSICAL EDUCATION — SPECIALISATION TESTS

### SWIMMING

| Marks | 50 m free style (s and tenths) | | 100 m free style (min and s) | | 200 m free style (min and s) | | 400 m free style (min and s) | 50 m breast stroke (min and s) | | 75 m breast stroke (min and s) | 100 m breast stroke (min and s) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Boys | Girls | Girls | Boys |
| 10 | 45·0 | 55·0 | 1:30 | 1:50 | 3:00 | 3:40 | 6:00 | 1:05 | 1:20 | 2:00 | 2:15 |
| 9 | 46·3 | 56·3 | 1:32·5 | 1:53 | 3:05 | 3:46 | 6:10 | 1:07·5 | 1:22·5 | 2:03·5 | 2:17·5 |
| 8 | 47·5 | 57·5 | 1:35 | 1:55 | 3:10 | 3:50 | 6:20 | 1:10 | 1:25 | 2:07·5 | 2:20 |
| 7 | 50·0 | 60·0 | 1:40 | 2:00 | 3:20 | 4:00 | 6:40 | 1:12·5 | 1:27 5 | 2:10·5 | 2:25 |
| 6 | 52·5 | 62·5 | 1:45 | 2:05 | 3:30 | 4:10 | 7:00 | 1:15 | 1:30 | 2:15 | 2:30 |
| 5 | 55·0 | 65·0 | 1:50 | 2:10 | 3:40 | 4:20 | 7:20 | 1:17 5 | 1:32·5 | 2:18·5 | 2:35 |
| 4 | 57·5 | 67·5 | 1:55 | 2:15 | 3:50 | 4:30 | 7:40 | 1:20 | 1:35 | 2:22·5 | 2:40 |
| 3 | 58 7 | 68·7 | 1:57·5 | 2:17·5 | 3:55 | 4:35 | 7:50 | 1:22 | 1:37 | 2:25·5 | 2:42·5 |
| 2 | 60·0 | 70·0 | 2:20 | 2:20 | 4:00 | 4:40 | 8:00 | 1:24 | 1:39 | 2:28·5 | 2:45 |
| 1 | 61·2 | 71·2 | 2:02·5 | 2:22·5 | 4:00·5 | 4:45 | 8:10 | 1:26 | 1:41 | 2:30·5 | 2:47 |

***Note** : For timings in between or lower than those indicated in the table the lower mark should be given.

## PERFORMANCE TABLE—PHYSICAL EDUCATION—SPECIALISATION TESTS
## SWIMMING (CONTINUED)

| Marks | 50 m back stroke (min and s) | | 75 m back stroke (min and s) | 100 m back stroke (min and s) | 50 m butterfly stroke (min and s) | | 75 m butterfly stroke (min and s) | 100 m butterfly stroke (min and s) | Diving |
|---|---|---|---|---|---|---|---|---|---|
| | Boys | Girls | Girls | Boys | Boys | Girls | Girls | Boys | Description of action : |
| 10 | 0:55 | 1:10 | 1:45 | 2:00 | 0:55 | 1:05 | 1:37·5 | 1:50 | Vertical, erect body, arms and legs together |
| 9 | 1:00 | 1:15 | 1:52 | 2:02·5 | 0:57 | 1:10 | 1:45 | 1:52·5 | |
| 8 | 1:02·5 | 1:17·5 | 1:56 | 2:05 | 1:00 | 1:12·5 | 1:49 | 1:55 | Poor angle (either backward or forward) |
| 7 | 1:05 | 1:20 | 2:00 | 2:10 | 1:02·5 | 1:15 | 1:53 | 2:00 | |
| 6 | 1:07·5 | 1:22·5 | 2:05 | 2:15 | 1:05 | 1:17·5 | 1:58 | 2:05 | Poor angle opening of arms, in front, side etc |
| 5 | 1:10 | 1:25 | 2:07·5 | 2:20 | 1:07·5 | 1:20 | 2:01 | 2:10 | |
| 4 | 1:12·5 | 1:27·5 | 2:11 | 2:25 | 1:10 | 1:22·5 | 2:04 | 2:15 | Poor angle, opening of arms and legs |
| 3 | 1:14 | 1:29 | 2:14 | 2:27·5 | 1:12·5 | 1:24 | 2:07 | 2:17·5 | |
| 2 | 1:15 | 1:15 | 2:16 | 2:30 | 1:14 | 1:25 | 2:09 | 2:20 | Poor angle, opening of arms and legs and fright |
| 1 | 1:16 | 1:31 | 2:18 | 2:32·5 | 1:16 | 1:26 | 2:11 | 2:25 | |

***Note** : For timings in between or lower than those indicated in the table the lower mark should be given.

## 7. SOCIALLY USEFUL PRODUCTIVE WORK

Extract from the Report of the Review Committee on the Curriculum for the Ten-year School.

Chapter III Programme by Classes.

**Classes VIII-IX-X**

Greater emphasis should be placed on work practice in these classes.

Work practice will include *one* main craft or equivalent service and at least *one* subsidiary craft or equivalent service.

### MAIN CRAFTS/SERVICES

(*i*) *Health and Hygiene.*

Growing medicinal plants ; eradication of communicable diseases ; paramedical service.

(*ii*) *Food.*

Agro-industries ; kitchen gardening ; post culture ; crop and seed production ; repair of farm implements ; soil conservation and desert control ; horticulture ; animal husbandry and dairying ; bee keeping ; poultry farming ; fish culture bakery ; confectionery ; cooking.

(*iii*) *Shelter.*

Pottery ; masonry work ; workshop practice (mechanical) ; workshop practice (electrical) ; workshop practice (electronics) ; cane and bamboo work ; house-craft ; blacksmithy ; foundry work ; carpet weaving.

(*iv*) *Clothing.*

Production of cotton ; wool ; silk and other fibres ; weaving ; dress making ; knitting ; hosiery work ; embroidery work ; dress designing ; leather work.

(*v*) *Cultural and recreational.*

Making toys and puppets ; making and repairing musical instruments ; making games material ; printing ; book binding ; making stationery ; photography.

## SUBSIDIARY CRAFTS/SERVICES

(*i*) *Health and Hygiene.*

Cleanliness of the neighbourhood, well and pond and the disposal of garbage ; construction of toilet facilities and compost pits ; making tooth picks ; tooth powder ; soap ; detergents ; disinfectants ; first-aid boxes ; construction of waste paper baskets ; dust bins ; garbage cans ; brooms ; brushes ; cob-web cleaners ; dusters ; mops etc. ; detection of adulteration.

(*ii*) *Food.*

Distribution of fertilisers and insecticides ; processing and preservation of food ; hydroponics ; mushroom culture ; *khandsari*, *gur* and candy making ; catering ; making jam, jelly, squashes, pickles, *bari* and *papad* etc. ; packing food ; marketing.

(*iii*) *Shelter.*

Home, village and town planning.
Lac culture.
Renovation and effecting minor repairs in buildings, fittings, furniture and household articles. Decorating the home ; gardening ; surface decoration ; interior decoration ; construction of decorative pieces ; plaster of paris work ; chalk and candle making; making limestone.

(*iv*) *Clothing.*

Spinning of different fibres ; dyeing and printing ; repair of garments ; laundry work.

(*v*) *Cultural and recreational.*

Stage craft ; making costumes ; holding exhibitions.

**Further suggestion on Socially Useful Productive Work :**

Given below is an indication of how Socially Useful Productive Work can be combined with the sixth subject to be offered in the ICSE examination :

| *Subject allied* | *Craft Socially Useful Productive Work.* |
|---|---|
| 1. Art | 1. (i) Pottery work<br>(ii) Sculpture : any medium<br>(iii) Weaving : any medium<br>(iv) Block printing, screen-printing, batik, tie and dye etc., on any material.<br>(v) Embroidery.<br>(vi) Puppet or marionette making.<br>(vii) Printing from original wood or lino block. |
| 2. Technical Drawing | 2. Woodwork or Metalwork |
| 3. Economics | 3. Typewriting/Shorthand |
| 4. Commerce | 4. Typewriting/Shorthand |
| 5. Elements of Accounts | 5. Typewriting/Shorthand |
| 6. Office Practice | 6. Shorthand/Typewriting |
| 7. Elements of Home Science | 7. Laundry Work or Practical Cookery or Care of a House. |
| 8. Cookery | 8. Practical Cookery. |
| 9. Needlework | 9. Needlework and Dressmaking. |
| 10. Music (a) (Indian) | 10. (a) Vocal, Instrumental, Tabla. |
| (b) (Western) | (b) Piano or other instrument. |

## 8. SOCIALLY USEFUL PRODUCTIVE WORK AND COMMUNITY SERVICE

### ASSESSMENT

*(Classes IX and X)*

Evaluation is an important aspect of planning and execution of the Socially Useful Productive Work and Community Service Programme in Schools. From the beginning of the programme each step needs evaluation. An illustrative guide to the areas of assessment and weightage to be given is contained in the following paragraphs.

**1. Selection of Socially Useful Productive Work and Community Service**

Suggested lists of the Main Crafts/Services and Subsidiary Crafts/Services have been given on pages 122 and 123 respectively in the syllabuses booklet.

Candidates will be required to select one main craft and one subsidiary service OR one main service and one subsidiary craft per year of preparation for the examination, i.e. Classes IX and X.

**2. Internal Assessment**

The Internal Assessment will consist of assessments in (a) Socially Useful Productive Work and (b) Community Service. The work undertaken by the candidates during the two-year preparation period in each will be assessed and marked out of 50. From these assessments they will be placed in an order of merit list giving them marks out of a total of 100.

The order of merit lists are confidential to the Council, and the Council reserves the right to call for the records of the candidates' work.

**3. Socially Useful Productive Work**

(i) This will be taken to mean work practice in a main or subsidiary craft. In contrast to community service it implies the making of articles of social use or the practice of a skill.

(ii) The areas of assessment of Socially Useful Productive work may be classified as follows :—

| | *Marks* |
|---|---|
| (1) Preparation | 5 |
| (2) Organisation | 10 |
| (3) Skills | 20 |
| (4) Research | 10 |
| (5) Interest | 5 |

(iii) *Preparation* : It is important to select a craft which is socially useful and within the candidates' capabilities. It may be necessary to visit localities where certain crafts are practised and note details of the processes or methods involved.

(iv) *Organisation* : The candidates should be able to explain in writing, the tools, materials and processes required as well as draw up a timetable/programme of work.

(v) *Skills* : The manipulative skills of the candidates should be assessed regularly and from the finished product (s) and should include the candidates' abilities to follow the processes or methods of the craft.

(vi) *Research* : This is the candidates' ability to analyse a process or method and suggest/implement improvements as also improvise wherever necessary.

(vii) *Interest* : This is an assessment of the candidates' industriousness, constancy and conscientiousness with regard to the work undertaken. The candidates should be able to adhere to the timetable/programme of work drawn up by them.

(viii) *Record Card* : This should be kept for each candidate and the assessment of Socially Useful Productive Work entered in it. A specimen of the record card is given below for guidance.

NAME OF THE SCHOOL

**Internal Assessment Card for Socially Useful Productive Work**

Name of candidate : .....

Craft/Skill : .....

**ASSESSMENT RECORD**

| Date of Assessment | Areas of Assessment | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Preparation | | Organisation | | Skills | | Research | | Interest | |
| | Grade | Points | Grade | Points | Grade | Points | Grade | Points | Grade | Points |
| | | | | | | | | | | |

INTERPRETATION OF GRADES

| *Grade* | *Standard* | *Point per grade* |
|---|---|---|
| A | Very Good | 10 |
| B | Good | 8 |
| C | Fair | 6 |
| D | Satisfactory | 4 |
| E | Unsatisfactory | 2 |

**4. Community Service :**

(i) This will be taken to mean work done in the home, school and outside which is beneficial to the community.

(ii) The areas of assessment for community service may be as under :

| | *Marks* |
|---|---|
| (1) Preparation | 5 |
| (2) Organisation | 10 |
| (3) Skills | 20 |
| (4) Resourcefulness | 10 |
| (5) Interest | 5 |

(iii) *Preparation* : It is important to select a service which will be beneficial to the community. It may be necessary to form teams or squads and to select a leader.

(iv) *Organisation* is the knowledge of the tools, materials and methods/processes by which the work can be done, and the ability to draw up a timetable or programme of work.

(v) *Skills* are the manipulative skills of doing the work. The quality of the candidates' work should be assessed.

(vi) *Resourcefulness* is the ability to complete the work in spite of problems and difficulties and to improvise wherever necessary.

(vii) *Interest* is the assessment of the candidates' constancy, industriousness and conscientiousness in doing the work and their abilities to adhere to the timetable or programme drawn up by them.

(viii) A record card on the lines suggested for Socially Useful Productive Work (see page 127) should be kept.

(ix) A **practical scheme** for day schools is given below :

(a) In the case of day schools, parents should be involved in making their children aware of their responsibilities in the home and to persons in the area in which they live. They should be encouraged to render service in the home and to their neighbours. Such service may take the form of helping parents in cleaning the house, making the beds, assisting in the kitchen, cleaning the backyard, helping in the garden, visiting the sick, teaching a child or children in the neighbourhood, and so on.

Experiments should be tried in every school in which there are day scholars. Parents should be asked to give each child a job of work to do which will last between 20 minutes to half-an-hour *each day*.

(b) A diary should be kept for each child in which the parents enter this every day :

(i) Nature of work ;
(ii) Time allotted ;
(iii) Remark of the parent ;
(iv) Signature of the parent.

Thus, it will be possible for the school to ensure that children do at least three to three-and-half hours of *Socially Useful Productive Work, per week.*

(c) The number of hours, as far as the *Social Service* is concerned, in the case of day scholars, will then be within the home and the neighbourhood and may rightly be termed "Homework."

The remarks to be entered by the parent should be specified, so that they may be converted into grades.

(d) A suggested five points "*remarks*" scale is given below :

A—Very Good
B—Good
C—Satisfactory
D—Poor
E—Unsatisfactory

(e) The class teacher should be required to enter the "grades" in a special register against each child.

At the end of the month/term these grades may be converted into points thus :

| *Standard* | *Grade* | *Points* |
|---|---|---|
| Very Good | A | 10 |
| Good | B | 8 |
| Satisfactory | C | 6 |
| Poor | D | 4 |
| Unsatisfactory | E | 2 |

## APPENDIX

## INDIAN CERTIFICATE OF SECONDARY EDUCATION EXAMINATION, MARCH 1984

## LIST OF PRESCRIBED TEXT BOOKS

### 1. ENGLISH

**Paper 1.** (Language)

It has been recommended that the study of English Language should be linked directly with the reading of a book or books well-written in English. The following book is recommended for background reading.

"*Selected Readings*" Ed. Dorothy P. Tullett
Pub. Frank Brothers & Co., Chandni Chowk, Delhi-110006

**Paper 2.** (Literature in English) (See Syllabus page 2)

| | | |
|---|---|---|
| **Prose** | : C.J. Olliver (Ed.) | *Tales from Near and Far* (Frank Brothers) |
| | Jack Gibson (Ed.) | *Ageless Stories* (Mukul Prakashan) |
| | Ruskin Bond | *The Room on the Roof* (Students Stores) |
| | Dickens | *Hard Times* (The Oxford Illustrated Dickens) OUP |
| **Drama** | : Shakespeare | *The Merchant of Venice* |

**Poetry** : *Panorama* : A Selection of Poems (Oxford University Press) (*Compulsory*)

*The following poems to be studied*

| | | |
|---|---|---|
| 1. | *To India—My Native Land* | Derozio |
| 2. | *The Warrior's Return* | S.C. Dutt |
| 3. | *Where the mind is without fear* | R. Tagore |
| 4. | *Coromandel Fishers* | S. Naidu |
| 5. | *Night of the Scorpion* | N. Ezekiel |
| 6. | *On Killing a Tree* | G. Patel |
| 7. | *The Village Schoolmaster* | O. Goldsmith |
| 8. | *The Solitary Reaper* | W. Wordsworth |
| 9. | *Lochinvar* | Sir Walter Scott |

| | | |
|---|---|---|
| 10. | *The Inchcape Rock* | R. Southey |
| 11. | *The Soldier's Dream* | T. Campbell |
| 12. | *Abou Ben Adhem* | J. L. Hunt |
| 13. | *To a Skylark* | P. B. Shelley |
| 14. | *Paul Revere's Ride* | H. W. Longfellow |
| 15. | *From "The Passing of Arthur"* | Lord Tennyson |
| 16. | *The Pied Piper of Hamelin* | R. Browning |
| 17. | *I Vow to Thee, my Country* | Sir Cecil Spring-Rice |
| 18. | *The Ballad of East and West* | R. Kipling |
| 19. | *Tartary* | Walter de la Mare |
| 20. | *The Highwayman* | A. Noyes |

## INDIAN LANGUAGES : PAPER 2

(See Syllabus, pages 3 and 4)

**ASSAMESE :**

**Note :** Only *three* of the following books are to be offered :

(i) *Surabhi* : by Lakshminath Bezbarua
Pub. : M/s Sahitya Prakash Gauhati

(ii) *Tolstayar Deshat* : by Surendra Mohan Das
Pub. : Asim Das, C.K. Agarwala Road, Gauhati

(iii) *Bhanumati* : by Padmanath Gohain Barua
Pub. : M/s. Publication Board, Assam, Gauhati-781003

(iv) *Sakunir Pratosodh* : by Ganesh Chandra Gogoi
Pub. : Nabin Pustak Bhandar, Golaghat, Assam

**OR**

"SAKHA", Lakhtakiya Road, Gauhati-81001

**3. BENGALI :**

**Note** : Only *three* of the following books are to be offered :

(i) *Bangla Rachana Sangraha* (Prose)
Ed. Mahasveta Devy (Oxford University Press)

(ii) *Bangla Galpa Sangraha* (Short Stories)
Ed. Mahasveta Devy (Oxford University Press)

(iii) *Chhelebela* by R. Tagore

(iv) *Dhatridevata* Ed. Mahasveta Devy, OUP

(v) *Kavia Vichitra* (Part I)
Ed. by Prof. B.N. Ghosh and Smti. M. Devi
Published by Oxford University Press

The following poems are to be studied :

1. *Mhi Ravan Badh* : Krittivas

2. *Bangbahasa* : Michael Madhusudan Dutt
3. *Ashok Taru* : Hemachandra Bandopadhyay
4. *Prabhat Utsal* : Rabindranath Tagore
5. *Sarthka Janam* : Rabindranath Tagore
6. *Shajahan* : Kamini Roy
7. *Michhe Tui Bhabish Mon.* : Atual Prasad Sen
8. *Bela Jay* : Pramathanath Roy Chowdhury
9. *Kanya Sarat* : Mohit Lal Mazumdar
10. *Amra Chhtara Dal* : Kaji Nazrul Islam
11. *Manush* : Jatindranath Sen Gupta
12. *Harana Tupi* : Kader Nawaz

**4. DZONGKHA**

(i) *Dzongkha Reader V.*
(ii) *Dzongkha Reader VII.*
(iii) *Dzongkha Reader VIII.*

**5. GUJARATI**

(i) *Smaranyatra* : by Kaka Kalekar (abridged edition) Pub. : M/s. Vora and Co., Bombay
(ii) *Satyana Prayogo* : (Part I, Chapters 1 to 25) Pub. : Navjivan Prakashan Mandir
(iii) *Dhumketuna Varta-Ratno* : by Dhumketu (Stories No. 1 to 12, i.e. "Bhaiyada" to "Kavitano Punarjana".)

**6. HINDI**

**Note** : Only *three* of the following books are to be offered :

(i) *Chune Hue Phul* : Frank Brothers & Co., Chandni Chowk, Delhi-110006
(ii) *Kahani Vividha* : Selina Publishers, Dayanand Marg, Darya Ganj, New Delhi-110002
(iii) *Darpan* : (Ekanki Sangrah) : Frank Brothers & Co. Chandni Chowk, Delhi-110006
(iv) *Katey Hue Hath* (Novel) : By Bhim Sen Tyagi Pub. : Selina Publishers, Dayanand Marg, Darya Ganj, New Delhi-110002
(v) *Kavya Manjushah* : ed. Mrs. Prem Dhall, Pub. : Mukul Prakashan, J-2 Kailash Colony, New Delhi-110048

*Poems of the following authors only to be studied* :

1. Surdas

2. Tulsidas
3. Bhartendu Harish Chandra
4. Ayodhya Singh Upadhyay
5. Makhan Lal Chaturvedi
6. Ram Naresh Tripathi
7. Surya Kant Tripathi Nirala
8. Subhadra Kumari Chauhan
9. Harivansh Ray Bacchan
10. Ramdhari Singh Dinkar
11. Bhavani Prasad
12. Gopal Singh Nepali

**7. KANNADA**

(i) *Nanna Devaru Mattu Itara Kathegalu* by 'Kuvempu' Pub. : Udaya Ravi Prakashan, Vanivilasapuram, Mysore-570002

(ii) *Dhoomra-Valayagalu* : by Dr. R.Y. Dharwadkar Pub. : Dr. R.Y. Dharwadkar, Satya Deep Dharwar-580002

(iii) *Deepamale* : by Siddavanahalli Krishnasharma Pub. : Minchinaballi Prakashana, Dharwar-580001

**8. KHASI**

(i) *U Khain Bad Ka Ngen* : by B. Chedrack Jyrwa

(ii) *Ka Ki Sngi U Syiem* : by Dewi Singh Khongdup

*Only the following selection is to be studied* :

(a) Ka Besli, u Dada
(b) U Shukor, U Buituh bad U Thoemut
(c) U Sier Lapalang bad U Shken
(d) U Wangnub.
(e) Ki Nongap Masi u Syieni ha Sor Shillong
(f) U Kuku u bishar kam
(g) U Tamti bad u Jler Thylliej
(h) U Monia Ka Natsurthrang bad Ka Umkiehun
(i) U Khun Ka Nongpie Phlang
(j) Ka Tiew Baro

(iii) *Mihngi Sepngi* : by Rev. Fr. H. Elias

*Only the following selection is to be studied :*

(a) U Kwai, u Tympew bad u Dumasla
(b) U Kput jonj u Blei

(c) U Mahajon Ka Benis
(d) U Lokamanya Tilak
(e) Ka Sultana Rasia jong ka Delhi

**9. MALAYALAM**

**Note :** Only *three* of the following books are to be offered :

(i) *Pathu Kathakal* : by Karoor
(ii) *Puri Muthal Nasik Vare* : by Vettoor Raman Nair
(iii) *Ormakalile Nehru* : by Bharati Udayabanu
(iv) *Marthanda Varma* : by C. V. Raman Pillai
(v) *Pathinonnu Europen Natukalil* : Tatapuram Sukumaran
(vi) *Mindapennu* : by Uroob (Tourist Publications Calicut) Available at National Book Stall, Kottayam, Kerala

**10. MARATHI**

(i) *Smritichitte* : by Laxmibai Tilak (Sankhipta) Sec. Edition
Pub. : Popular Prakashan, 35-C Tardeo, Bombay-400034
(ii) *Pandhare Kes, Hiravi Mane* : V.D. Ghate
Pub. : Mouj Prakashan, Bombay
(iii) *Haddapar* : by S.N. Pendase
Pub : Mouj Prakashan, Bombay

**11. NEPALI**

Note : Only *three* of the following books are to be offered :

(i) *Bhramar* :
(ii) *Katha Kusum*
Only the following selection is to be studied :
(a) Kaikaie — by Balkrishna Shumsher
(b) Vidha, (c) Paral-ko-ago — by Guruprasad Mainali
(d) Prabandha — by Pushker Shumsher
(e) Satru, (f) Sipathin — by Bisheswar Prasad Koiralla

(iii) *Pandhara Tora Ra Nepali Sahitya* :
Only the following selection is to be studied :
(a) Bhanubhakta Acharya
(b) Motiram Bhatta
(c) Lekhnath Pondyal
(d) Dharnidhar Koiralla
(e) Parasmani Pradhan

(f) Balkrishna Sama
(g) Lakshmiprasad Devkota
(h) Siddhicharan Sherstha

(iv) (Prose) *Sammelan Katha Sangraha*

Only the following selection to be studied

| | |
|---|---|
| (a) Anutapa | by Shri Indra Sundas |
| (b) Agyat Bir | by Shri Krishna Singh Moktan |
| (c) Svari-ko-din | by Shri Sanker Koirala |
| (d) Pagh Boju | by Shri Prakash Kobid |
| (e) Havildar | by Shri Mahananda Pomdyal |
| (f) Abstract Art | by Shri Shiva Kumar Lal |

**12 ORIYA**

(i) *Sakuntala* : by Prof. Sridhar Das

(ii) *Galpa Sankalana* : by Sri Sribram Mohapatra

(iii) *Swadhinatar Kahani* : by Sri Krishan Chandra Kar and Sri Bhagaban Pati

Pub. : Sri Aviram Mohapatra, Grantha Mandira, Cuttack-753002

**13. PUNJABI**

*Note* : only *three* of the following books are to be offered :

(*i*) *Chitta Lahu* : by Nanak Singh
Pub. : Navyug Publishers, Chandni Chowk, Delhi-110009

(*ii*) *Chonven Punjabi Ikangi* : Ed. by Dr. Attar Singh
Pub. : National Book Trust of India, New Delhi

(*iii*) *Pairan* : Ed. by Dalip Kaur Tiwana
Pub. Punjabi University, Patiala

(*iv*) Chonven Punjabi Ikangi, Dr. Harcharan Singh
Pub. Punjabi University, Patiala

**14. TAMIL**

(*i*) *Pulavar Mahan* : by Mr. Puvannan
Pub. : Pari Nilayam, 59, Broadway, Madras-600001

(*ii*) *Santhi* : by Mr. T.P. Perumal
Pub. : Palaniyappa Brothers, Madras-600014

(*iii*) *Poet Tagore* : by Dr. M. Varadarajanar
Pub. : Pari Nilayam, 59, Broadway, Madras-600001

**5. TELUGU**

Note : Only *three* of the following books are to be offered :

(*i*) *Maharishi Vivekenandudu* : by Vidyavisarada.
Pub. : Sri K.T.L. Narasimha Choryu Goda Grandha Mala, Musunoor, Nuzvid Taluk, Krishna Dist. (A.P.)

(*ii*) *Cheritrakekkina Charilardhulu* : by Challa Radha Krishna Sharma
Pub. : M. Seshachalam & Co., Mosulipatnam, Krishna Dist.

(*iii*) *Pauchami* : by S. Krishnamurti
Pub. : The Government of Andhra Pradesh

(*iv*) *Veerula Kathalu* :
Pub. : National Book Trust of India

(*v*) *Yuga Yugala Kathalu* :
Pub. : National Book Trust of India
Available at Andhra Pradesh Book Distributors
Rashtrapati Road, Hyderabad-500001

**16. URDU**

(*i*) *Nujoomi Appa* : Published by Athar Parvaze, Urdu Ghat Aligarh

(*ii*) *Ibrul Wakt* : Dr. Nazir Ahmed
Available at Maktaba Jamia Ltd., Urdu Bazar Delhi-100006

(*iii*) *Ibtedai Urdu Nisab* : Ed. Abrul Kalam Rasni
(1979 edition) Pub. Educational House Aligarh