

EXAMINATION REFORM

A PLAN OF ACTION

(annexed the Recommendations of the Zonal Workshops)

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UNIVERSITY GRANTS COMMISSION

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FOREWORD

A number of committees and commissions have deliberated about the examination system at various educational levels. According to the Report of the Education Commission (1964-66), "The crippling effect of external examinations on the quality of work in higher education is so great that examination reform has become crucial to all progress, and has to go hand in hand with the improvements in teaching." The University Grants Commission which according to the UGC Act of 1956 modified upto the 17th of June, 1972, has the general duty to take "all such steps as it may think fit for the promotion and coordination of university education and for the determination and maintenance of standards of teaching, examination and research in universities." is convinced that implementation of examination reform, along the lines suggested in this document, is in the interest of maintenance of standards of teaching and examination. The Commission at its meeting held on August 2, 1972, endorsed the recommendations contained in the document "Examination Reform—A Plan of Action" prepared by a working group set up by the Ministry of Education and Social Welfare.

In 1974, the University Grants Commission convened four zonal workshops to discuss problems relating to examination reforms, autonomous colleges and postgraduate education. The workshops were held between July and November 1974 at Madurai, Ahmedabad, Chandigarh and Bhubaneswar. The recommendations of the workshops on examination reforms were brought out in the form of a brochure (Section II). The workshops broadly endorsed the UGC scheme of examination reform and accepted the philosophy outlined in "Examination Reform—A Plan of Action". However, various issues regarding the system of grading could not be discussed in these workshops in depth. It was therefore decided to convene zonal workshops to discuss the objectives and mechanics of the grading system in all its ramifications.

The workshops were held at the University of Delhi (October 14-15, 1975), Panjab University, Chandigarh (December 2-3, 1975), University of Bombay (December 16-17, 1975), the University of Madras (December 22-23, 1975) Jabalpur University (April 3-4, 1976) and University of Calcutta (May 1-2, 1976). Section III is based on the recommendations of these zonal workshops.

The grade system was generally welcomed by the workshops as it was

felt that it would reduce some of the arbitrariness in the present system of marks. Different methods of grading were discussed and it was felt that a seven-point scale should be preferred. The advantages of the cumulative grade point were also emphasised as they would enable postgraduate admission committees and employing agencies to distinguish among students of certain category. The adoption of the grading system on the basis of well-defined categories as indicated in the brochure will also mitigate the problem of mass-copying and use of unfair means at the undergraduate level as only a limited number of students will be placed in each of the grades. This particular reform should, therefore, be introduced without any delay by universities which have not done so far.

A number of universities have already taken steps in regard to sessional assessment, question banks, grading, semester pattern etc. All these measures form an integrated whole, and should not be separated one from the other. But while sessional assessment and question banks may be phased out according to concrete conditions, uniformity in the grading systems and their simultaneous adoption by many universities is important.

It is hoped that recommendations of the workshops epitomized in this brochure would be implemented by other universities from the academic session 1976-77 in the light of the objectives spelt out in "Examination Reform—A Plan of Action" already circulated to the Universities and considered by their academic bodies.

New Delhi
June, 1976

SATISH CHANDRA
Chairman
University Grants Commission

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SECTION 1

EXAMINATION REFORM

A Plan of Action

(Endorsed by the University Grants Commission)

1. INTRODUCTION

A number of committees and commissions have deliberated about the examination system at various educational levels.* There seems to be general agreement about the following :—

- a. Examinations have come to dominate the educational process ; passing them is more important than acquiring any education.
- b. External examinations, in particular, encourage selective study and cramming because they are more likely to have a set of stereotyped and general questions.
- c. The marking of the scripts even at the best public examinations is hurried and superficial. The marks obtained in examinations are not a reliable measure of a student's performance (leave aside achievement!); the combination of raw marks lacks validity.
- d. There is an increasing use of "unfair" practice, leading to complex administrative problems including danger to life and limb of the invigilators.
- e. "The crippling effect of external examinations on the quality of work in higher education is so great that examination reform has become crucial to all progress ; and has to go hand in hand with the improvements in teaching."* (Report of the Education Commission, 1964-66, p. 290).
- f. The most sound educational procedure would be to allow teachers of various courses to evaluate the performance of their students in accordance with the objectives they had set before themselves, so that instruction may be improved in the light of the evaluation. The Report of the Education Commission (1964-65), says at p. 290 : "One line of attack would be to abolish set syllabuses and the external examinations based on them, and to replace them by a system of internal and continuous evaluation by teachers themselves. This is already being done in some institutions like the Indian Institutes of Technology and the agricultural universities and it could be increasingly extended to others as soon as the necessary facilities and conditions can be provided. We hope that at no distant date it will be adopted by all the teaching universities and that the major universities would give a lead in the matter."

* Please see Appendix VI: Bibliography on Examination Reform.

2. IMPEDIMENTS TO REFORM

In spite of the large area of agreement and the pressing need of examination reform, we have not been able to make much headway in this direction. The reasons for the failure seem to be the following :

- a. A large body of teachers and educational administrators is not yet fully conscious of the subjectivity, unreliability and lack of validity of the examinations as conducted today. On the other hand an alternative system has not been clearly spelled out before them. Of course, like most other groups, they have an inertia which goes against any change. They expound the drawbacks of internal assessment, to make it seem an evil as big as the present system of examination without realising that examinations of the present type undermine basic educational objectives.
- b. There are vested interests. The various examination boards together have a vast machinery; they probably spend crores of rupees and thus distribute favours. Many university teachers may be earning a month's extra salary from remuneration. Those who are senior and have more voice in academic decision making, may be earning much more than this.
- c. The various agencies which could have pressed for examination reform have shown considerable lack of will in using authority, advice, and legal privilege to bring about a change. They have left the initiative in the hands of those who suffer from drawbacks (a) and (b) above.
- d. The most common and relatively weighty reason given for avoiding or postponing examination reform is that if any university would give up external examinations, its degree would be devalued. Individually, teachers and institutions may support the idea of reform but they think it expedient to put the idea in practice by joint action of at least a few prominent universities.

3. GENERAL PRINCIPLES OF THE REFORM

The new or the desirable pattern of examinations must be based on the following general principles* most of which have been recommended before by either the Education Commission, the Committee on Examinations of the Central Advisory Board of Education, or the bi-national conferences in various disciplines sponsored by the UGC.

- a. Those who teach should also examine. In this sense examinations must become "internal", and an integral part of the teaching process.

* *Approved by the Working Group on Examination Reform Set-up by the Ministry of Education and Social Welfare in 1971.*

- b. Since sessional or continuous assessment‡ measures a number of essential abilities (such as drive and capacity for hard-work, motivation, quality of imagination, intuition and speculation, leadership and team work, skilled use of hands etc.) which a terminal examination or an achievement test does not measure, such assessment must be shown on the gradesheet separately.
- c. The “standard” of every institution is ultimately governed by the standard of education imparted by it. In this sense every university or college has to maintain and defend its own standard. This implies that the name of the institution or college where a candidate has studied should be mentioned on the diploma or degree or gradesheet issued to the candidate.
- d. If the award of a degree or diploma or examination depends on the performance of a student in a number of courses, these courses should be delinked from each other, so that if a student has failed to make the grade in a particular course he may not be penalised in other courses due to this failure. The delinking of courses in this manner will allow movement of students, if necessary, from one institution to another, and from one type of study to another.
- e. The performance of students must be assessed over well distributed intervals of time so that a course which is completed in a year or a semester must come up for examination at the end of the year or the semester, without having to wait for the “final” examination.
- f. The performance of students cannot be measured so accurately and so unambiguously as to be recorded in marks : and since the standards of judgement for various subjects are also different students must be awarded grades† and not marks at the examinations and assessments. (A* may stand for distinguished performance such as may be expected from not more than a few per cent of students ; A may stand for very good—or the top one quarter of students in a normal class; B for satisfactory; C for poor; and D for unsatisfactory).
- g. Examinations to determine the terminal performance of students in a course or towards a degree, or measures of achievement should be distinguished from entrance examinations (which may partly be aptitudinal and predictive) to either service or other courses of study. This implies that institutions preparing students for certain degrees should hold examinations/assessment as an integral part of their teaching programme.

‡ Please see Appendix II on Internal Assessment for details.

† Please see Appendix III on Marks and Grades for details. The final Recommendations on Grading are in Section III of this brochure.

On the other hand, if the number of applicants for admission to an institution exceeds the number of seats, the institution should hold its own entrance examination/tests so that the fitness of a student for the particular course may be judged on a common basis.

- h. A national examination* in various subjects at the bachelor's level must be conducted by a central authority, on a purely voluntary basis. This examination could be designed to test creative thinking and comprehension of subject matter, so as to serve as a national index of performance and achievement of students at large and of various institutions. The examination ought to be conducted in all the regional languages and English and it should use a modern syllabus, and the best techniques of paper setting, evaluation and processing of raw scores. A certificate carrying a grade should be issued to only those participants who achieve the higher grade. The examination should be open to everyone who wishes to take it.
- i. In order to provide an opportunity for further study to those who fail to gain admission to any institution, correspondence courses should be widely organised, and courses should be run by the "open university" so that one who so desires may get a degree by appearing at the examinations conducted by such a university, or national board, even without formalities of enrolment or attendance.
- j. The UGC should make it obligatory on all colleges and universities to supply it with complete information about examination papers and question banks. This information must be evaluated with respect to the standard of education reflected in it. The analysis may be supplied to the institutions concerned so that remedial action may be taken if necessary.

4. REFORMS IN PRACTICE

a. Unitary University

The principles stated above are recommended to be put into practice at the unitary universities.

b. Affiliating Universities (Undergraduate Level)

The above mentioned principles should be applied in the case of affiliating universities at the undergraduate level, with the universities adopting suitable measures to supervise (a) and (e) under 3 above.

* Please see Appendix IV on National Examination for details.

A series of steps which seem practicable are as follows :

- i. The university should allow decentralization of examinations retaining power for broad supervision of the examinations and power to give binding advice to the colleges in this respect. The university should maintain complete information about the manner in which colleges conduct examinations and it should keep a record of the statistics of performance. The results should be analysed and the university should draw the attention of the colleges to this analysis.
- ii. The boards of studies established by the universities should not only frame the syllabus, but also a 'Bank'* of questions for each of the courses. Questions for the bank may be invited from teachers as well as students, and where necessary members of the boards of studies should frame the questions. In this manner each course should have a bank in which there may be 50 to 100 questions. The questions in the bank must be suitably distributed over the entire course and they should preferably be of equivalent standard. The questions may be modified or changed every year. The teachers may be given a chance to set upto 25% questions from outside the bank, particularly numerical questions.
- iii. The question in the bank must be published and made available to the staff and the students concerned at the beginning of every year.
- iv. Colleges should be allowed to hold the examinations under the supervision of their own staff, the examination questions being selected from the question bank as suggested above. The university should lay down the procedure for selecting questions from the bank, and it should make known the scheme of evaluation for each answer to a question. It may be possible to have the questions printed on cards so that students could pick up a given number of cards by a random process. It is expected that in this manner expense on setting of question paper printing and storage etc., as also on invigilation could be largely avoided.
- v. The scripts must be examined by the teachers concerned at the colleges and the answer books should be returned to the candidates. Candidates who wish to appeal against the grade awarded by the teacher should be given an opportunity to appeal to a committee of which the members may be the principal, a teacher from the department or section concerned and perhaps a student representative.

* Please see Appendix V on Question Banks for details.

- vi. The degree should be awarded to all those candidates who attain a certain grade level to be decided by the university. Since the lowest grade in the system is suggested to be D, if a student gets a D in all the examinations or assessment for courses in a particular year the university may reserve the right to cancel his admission. Students who have completed the normal time for the degree or diploma may be given an additional semester or year to improve their performance under certain conditions to be decided by the university.
- vii. The grades awarded by internal assessment at the colleges must be subjected to a 5% sample check by the college authority. Similarly 5% of examination scripts must be sample-checked by the university. The result of the sample-check must be supplied to the college concerned with suitable advice from the university.
- viii. Colleges should be required to keep a cumulative record of the grades of the students and a copy of the record must be supplied every year to the university.
- ix. The remuneration for the examination of the scripts may have to be increased since the return of the scripts to the candidates would require suitable corrective indications on the scripts and hence time. But the increase of the remuneration is not likely to increase the expenditure on the examinations, since printing of papers, and fees for setting question papers are avoided.
- x. If the conduct of examination in the manner suggested above results in loss of legitimate revenue to the University, the matter should be sympathetically examined by the State and Central Governments.
- xi. The grade cards finally issued to the candidates should show the record of sessional assessment side by side with the examination grades. Whether or not sessional assessment should be counted towards an overall grade, and if so the weight to be attached to it, is a matter which should be decided by the university.

c. Affiliating Universities (Postgraduate Level)

Affiliating universities at the postgraduate level should adopt the above mentioned principles with suitable measures to supervise (a) and (b) above. Where adequate staff and facilities exist, the university may empower the individual postgraduate colleges to conduct their own assessments/examinations much as the unitary universities are expected to do. In such cases the university may only approve the syllabus through the board of studies in the subject concerned, and may keep itself fully informed of the examination procedures and standards of teaching in the colleges. In the case

of existing colleges where teaching staff and facilities are not upto the mark, the colleges may be allowed to have different syllabi approved by the boards of studies of the university, but the internal assessment and examinations should be supervised and modulated by the same procedures as indicated for undergraduate colleges in the section above. It is desirable that in future universities may start their own postgraduate centres when it is necessary to expand postgraduate education. These centres must be provided with suitable facilities for teaching and research, and then they could be left to conduct their own assessments and examinations in accordance with the general principles stated above.

Appendix I

LIST OF MEMBERS OF THE WORKING GROUP OF THE MINISTRY OF EDUCATION AND SOCIAL WELFARE ON EXAMINATION REFORM (1971)

1. Prof. Rais Ahmed,*
Aligarh Muslim University,
Aligarh.
2. Prof. S.V.C. Aiya,**
National Council of
Educational Research and Training,
New Delhi.
3. Prof. Satish Chandra***
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4. Prof. C.D.S. Devanesan,†
Madras Christian College,
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Jawaharlal Nehru University,
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* Now Director,
National Council of Educational Research and Training,
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*** Presently Chairman,
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‡ Presently, Vice-Chancellor,
University of Delhi.

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Jawaharlal Nehru University
New Delhi.

Appendix II

INTERNAL ASSESSMENT

1. The necessity of sessional or continuous assessment is hardly ever questioned in academic circles, but it is commonly thought that this is a corrective for the chance factor involved in public examinations held according to a ready made astronomical time schedule. It is also thought that the public examinations give an impersonal or 'objective' evaluation of a student's performance while sessional assessment has the drawback of being 'subjective'.

2. It is very necessary to look into the matter deeply and to realize that the above statements are only partly true; that in fact, sessional assessment deals with a sphere of activity which a public examination can never evaluate and hence the two are complementary to each other, that there are certain qualities of mind and of personality which can be reliably evaluated only by experienced teachers and hence 'subjectivity' cannot simply be equated to a lack of criterion or to arbitrariness.

3. In fact teaching, learning and evaluation are inseparably linked together. When we teach, an evaluation allows us to find out if the objectives have been achieved, and if not what modifications in method or programme ought to be made. Thus evaluation is an essential link to feed back information which is of immense value to further teaching.

4. The objectives of teaching whose fulfilment is to be evaluated are quite complicated. They may involve content, as well as a set of desirable intellectual and social patterns. For the sake of an example, the objectives of teaching a particular course may be all or several of the following :

- i. To transmit a body of facts, figures and theories etc. (like recording on magnetic tape);
- ii. to create a grasp and an understanding of the theories and principles so that one may apply them to new situations;
- iii. to produce a capacity of critically evaluating hypotheses when they are presented;
- iv. to cultivate an open and flexible mind, so that one may retain the capacity to learn new things in future;
- v. to cultivate an urge for perfection, an appreciation of beauty and inclination to search for newer and better solutions to problems, to discover and invent;

- vi. to train the mind for imagination, intuition and speculation into the realm of the unknown;
- vii. to produce motivation and drive in the individual to result in capacity for sustained intellectual effort, to possibly cultivate qualities of leadership as well as team work;
- viii. to cultivate specific manual skills;
- ix. to train in the ability to communicate at a high intellectual level through specific media and so on.

5. How does one evaluate the performance of a student in such a complicated situation? It is obvious that a versatile *set* of measuring instruments would be necessary. Fulfilment of some of the objectives can be tested by terminal examinations of the essay type provided a great deal of care is taken—this applies to (i), (ii) and perhaps (iii) and (ix) above. Objective tests can be used for (i) very effectively, but for (ii) and (iii) only with considerable expertize and experience; they cannot be used for (ix) and for many other objectives. Oral or face to face examinations are most suited to a large number of these objectives, and particularly for (iv), (vi), and (viii) and possibly (ix). Special tests have been devised to measure the performance on objectives (iv), (v) and (vi) but they are not yet suitable for frequent use in the class room; (vii) is even more difficult to assess. But an experienced teacher by continuously watching the attitude and reactions of a student to various situations, and by assigning specially designed tasks, can with remarkable consistency, assess the performance of a student on several of the most difficult objectives. The conclusion is that a harmonious set of tests, quizzes, tutorials, home assignments and orals have to be designed if an all-round assessment of the fulfilment of the objectives of a course has to be made. There is no escape from this and no substitute for the teacher in evaluating his students.

6. It is perhaps with this background that the Report of the Education Commission states on p. 290: "A system of internal assessment should be introduced as a supplement to the external examination, based on such periodical evaluations. The results of these assessments should not be mechanically added to the external marks but kept separate and both should be shown side by side in the final certificate. Passes should be required in both and the division gained in them should be shown separately."

7. The only question is that once in a while there may be a tendency to mark high or low deliberately, and there may be pressure to influence internal assessment. Some workable remedies which many institutions have employed in this connection may be :

- i. All internal assessment is open; that is, it is not secret. Marks or grades obtained are known to the students for each assessment as soon as it is made;

- ii. The work or test papers or the assignment on which assessment is made, is returned to the students promptly so that they can compare the grading if they wish, and so that they may approach the teacher if necessary to explain to them how a particular grade is awarded. This is the way in future, and this is the only way to create confidence in the grading.
- iii. In case a student is not satisfied with his grade in spite of (i) and (ii) above, the head of the department or of the college could look into the complaint. A small committee could also be formed to dispose of such complaints expeditiously. The mode of redress has to be decided by institutions in the light of their experience. Some universities which have practised (i) and (ii) above have the experience that hardly ever does a case has to be referred to the head.
- iv. The general level of grading could be reviewed every year, so that in particular cases teachers may receive data to convince them that a marked departure from expected distributions has taken place. In fact the review committee could also look into any possible complaints as stated in (iii) above.

MARKS AND GRADES*

1. The present practice in most of our public examinations is to measure the candidate's performance by assigning a mark to an answer script. Suppose, there is a paper of three hours carrying 100 marks. The examiners are asked to award numerical scores while assessing the answer scripts. The marks can range from 0 to 100. This is called the 101 point scale because, including 0, there are in all 101 units of measurement. The implicit meaning of having such 101 steps in marking is that a candidate who scores 46 marks is superior to one who scores 45 marks, and so on. Such an inference could be correct when the mark is a "true" mark. Unfortunately, the mark given by an examiner is a "raw" mark. Such a mark is subject to several uncertainties.

2. The first type of uncertainty is about the thing to be measured which is called the candidate's performance. This is invariably ill-defined. The mark may be a measure of the candidate's ability or knowledge or memory or intelligence or power of expression or a combination of one or more of these characteristics. No one really knows what the examiner has really measured. Therefore, the mark assigned may vary from one examiner to another.

3. The second type of uncertainty arises from the fact that it is assumed that there is a 'true' mark for each script. Such a 'true' mark can only be assigned by an ideal examiner who does not exist. The actual examiner, at best, makes only an estimate of the 'true' mark. This estimate is therefore, a 'raw' mark and is subject to considerable error. For some typical papers set at universities, experts have carried out a statistical analysis. Such a statistical analysis has shown that when an examiner assigns a mark to a script, there is 50 per cent chance that his error is greater than 5 per cent. This means that when a candidate is awarded a 'raw' mark of 41, the 'true' mark may be either above 46 or below 36 in 50 per cent of the cases. Under these circumstances, the 101 point scale where candidates are distinguished in steps of one mark loses all its significance.

4. Quite often, certain marks are laid down as the minimum required for passing, for getting a second class, or for getting a first class. Thus,

* For final recommendations on Grading, please see Section III of this brochure.

securing a minimum of 40 per cent marks may be necessary for a pass in a subject. From what has been said in the previous paragraph, it will be seen that this arbitrary minimum is meaningless. It may result in candidates who do not deserve a pass passing and vice-versa.

5. Unfortunately, the public in our country has not been kept informed of the inaccuracies of our current marking scheme. Many of them take the 'raw' mark assigned by an examiner as the 'true' mark and use the same for a variety of purposes. Thus, a candidate getting 60 per cent marks is regarded as superior to a candidate getting 59.9 per cent marks and gets admission to either higher courses of study or gets a chance for being interviewed for a post. This causes a considerable measure of frustration.

6. It will be seen from the above that the 101 point scale of marking together with the arbitrary minimum for a first, second or pass class is scientifically unsound. It was once adopted when our scientific knowledge about examinations was inadequate. Even with improved information becoming available about the reliability of such marks, we still continue giving marks on the 101 point scale and furnishing these marks to the student. The unscientific nature of this work and the harm it does to the student population is obvious from the previous paragraphs. One way of preventing authorities making admission to higher courses of study by going entirely on the marks secured by a candidate is to eliminate the 101 point scale from our scheme of working. This will also solve the problem of the candidates, being called for interviews for posts on the basis of marks. What the authorities need while considering candidates for higher courses or for employment is a prediction of how successful the candidate would be in the expected career. For this purpose, the authorities will have to carry out separate tests specially designed to evaluate the suitability of candidates and not use the marks in examination.

7. If a sample of 100 candidates is taken, assuming a normal distribution, the grading that can be done by a teacher or an examiner is shown in the table below:

Grouping of Pupils by a Teacher

<i>Classification</i>	<i>Grade</i>	<i>Percentage of Population</i>
Outstanding	1	7
Very Good	2	24
Good	3	38
Fair	4	24
Poor	5	7

Grade 3 represents the mean accomplishment of all the candidates appearing in a subject at an examination. In this system of grading, there is no question of failure which is an archaic concept. The last grade, viz., grade 5 where the candidate's performance is poor could be regarded as a failure if one wants to believe in it. Ordinarily, all candidates appearing for an examination are assigned one of the grades as mentioned above in a grade system and this is stated in the certificates issued. It is open to a candidate to sit for an examination again and improve his grade if he so desires.

8. Many countries of the world have given considerable thought to this question of declaring the results of examinations either at a school or at a college or of a public examination. Most countries firmly believe that the only scientific way of sorting out candidates taking an examination is through a system of gradings indicated above.

9. One could think of the grade system indicated above as a five point scale. Looked at this way, we assign to a candidate taking an examination marks in terms of 1, 2, 3, 4 or 5. Such a scheme is much coarser than the 101 point scale. It is this coarser scale that is practically realizable having regard to the variety of ambiguities which creep in. Under the circumstances, it is most appropriate that the grade system is uniformly adopted in all our examinations in the country.

10. If an overall grade is to be awarded, the grades in individual courses may be weighted according to the credit hours of the courses concerned. For example, if the grades are $g_1, g_2, g_3, \text{etc.}$, and credits for courses are $c_1, c_2, c_3, \text{etc.}$, the average grade would be :

$$\frac{g_1c_1 + g_2c_2 + g_3c_3 + \dots}{c_1 + c_2 + c_3 \dots}$$

NATIONAL EXAMINATION

1. In the main body of the note a distinction has been made between examinations or tests etc. which are a functional part of the teaching-learning process, and examinations which may govern entrance to service or to other branches or levels of study or which may tend to establish national norms of educational achievement. The first type is best conducted by teachers concerned and within the framework of the educational institutions. The second type can hardly serve any purpose as a corrective or improver of efficiency in the teaching-learning process, except indirectly and after considerable time lag ; and it is best conducted by the agencies concerned where admission to service or special courses is involved, and by some national agency where national norms of student achievement are involved. If the two functions of the examinations are compacted in one, it is the second function which comes to dominate in spirit and form and the first is poisoned to such an extent that the objectives of education are lost within the scramble to pass examinations, leading someone to say that in India we don't have a system of education but a system of examination.

2. In fact an effective institution-wise decentralization of compulsory evaluations connected with teaching must be supplemented by a voluntary national examination at a suitable level. The bachelors degree stage is perhaps the most natural level for the national examination. Furthermore, to accommodate those who have studied in diverse institutions, or those who have done only self-study, the national examination has been recommended to be open to any one who desires to take it without educational or age restrictions.

3. It may be mentioned that the Report of the Education Commission (p. 308) had visualized a Central Testing Organization and had recommended to the UGC the setting up of the organization, one of the objectives being : "to provide the necessary services to colleges and universities such as administering selection tests, supplying the test results and suggesting ways and means of utilizing the results of selection." The other objectives were developing procedures for selection at various levels for various courses, and promoting research in this area. The Bi-national Conference on Biology held in 1971, and sponsored by the UGC/NCSE also recommended an optional national examination. The Bi-national Conference on Physics

similarly sponsored and held in 1970 made a recommendation with some elaboration and it is quoted below (p. 18 of the Proceedings):

“A common argument in favour of external examinations relates to the maintenance of national standards. The present examination system does not actually set standards effectively. There is some validity in the desirability of comparison tests. A voluntary examination may be conducted at several centres by a professional body to test as far as possible the creative thinking and comprehension in physics of students who have obtained the B. Sc. or equivalent degrees. Such an examination on a national scale may serve as a pace-setter to various institutions and it is likely to help them in improving their approach to the teaching of physics. At the same time it will set as a talent search examination for postgraduate departments selecting candidates for admission. Candidates performing exceptionally well in this examination should be awarded scholarships at the same level as the National Talent Scholars and they should be free to join institutions of their choice.”

4. At the Bi-national Conference on Physics it was visualized that the national examination would consist of any one or two papers per subject, and that a student will have to appear in at least three subjects to get a grade. It was also visualized that the papers would be framed every year by a changing group of scholars in each subject, using upto date techniques. Analysis of the results would be confidentially communicated to the institutions concerned and a frequent review will be made of the papers and the grading in the examination.

5. It appears that in the initial phases the best agency to set up the machinery for the national examination is the UGC, particularly in view of its responsibility in respect of maintenance and coordination of standards. But the volume of work, as also the necessity to conduct research and investigations in the field of evaluation would perhaps require that in the long run this should become a separate sub-agency under the UGC.

QUESTION BANKS

1. An examination is meant to test the achievement of a student in a subject. As such, it has to fulfil the conditions required for a fair test. Ordinarily, our examining bodies only prescribe a syllabus for a subject and make it available to the students. Sometimes, they recommend one or more textbooks. This is certainly not adequate. A student who is being examined must know how he is going to be examined. This is best indicated by a large number of questions on different portions of the prescribed syllabus. All such questions put together would really constitute a question bank. It is through such questions that a student can know what is expected of him in an examination. Unfortunately, our examining bodies do not prepare such question banks. Consequently, the examination paper can cause a variety of surprises to a student taking the examination and make him write his answers under abnormal conditions. Priority reform would be towards removing this serious defect in our present system.

2. In our present system, a board of paper setters set the examination paper. All the members of the board are not usually those teaching the subject. Further, the time given for setting the question paper is not always sufficiently long. Consequently, the papers set by such a Board of Paper Setters can prove to be defective. Some questions may be lengthy. Some questions may be requiring a lengthy answer. Some questions may be ambiguous in wording. Sometimes, some questions may be insolvable. All such defects arise from the fact that the questions have not been set with proper care and thinking and the question paper itself has been poorly designed. A well-designed question paper is expected to contain questions of equal merit spread throughout the syllabus. The number of questions to be answered is such that a well-prepared student can easily answer the questions required to be answered. These requirements become theoretical unless they are tried out with the class of students for whom the questions are meant. This can never happen because of the high degree of secrecy maintained in the processes of setting question papers.

3. Ordinarily, a few people are appointed to draw up a syllabus. A few others may be appointed as members of board of paper setters. Often, some others may be appointed to examine the answer script. A teacher who teaches the subject can only be involved in any one of these operations

if he happens to be appointed a member of a committee of courses, a member of a board of paper setters or a member of a board of examiners. This can only happen to a few of the teachers teaching the subject. Therefore, the majority of teachers do not enter the scheme of examination at any stage in any way. Consequently, there is no participation of all the teachers in the process of organising and conducting an examination or declaring its result. This lack of participation of the teachers in this work is one of the main causes of frustration among the teachers. Further, owing to this lack of participation, most teachers lose their sense of responsibility and, some of them do not hesitate to have a sarcastic laugh when there is a failure at any point in the present schemes of examination. The only cure for these glaring defects is through bringing all the teachers into this scheme of examinations with a full sense of participation. Further, it is the teachers who are most competent to understand the limitations of their students and set realistic and good questions. This hidden treasure for the successful working of an examination system is not made use of in our present system.

4. The concept of question banks has been evolved to eliminate the glaring defects pointed out in the previous paragraphs. Further, with the availability of question banks, it becomes possible to obtain uniformity of standards in question papers even when autonomy is granted to all schools and colleges as will be seen from what follows.

5. The operation of the scheme of question banks would be as follows. The examining body appoints a board of experts to prepare a question bank. This board functions throughout the year and replaces the old board of paper setters. This board examines the syllabus and the assigned duration of the question paper. Thereafter, it decides on the number of questions required to be answered in the examination within the set time. On the basis of this number, the prescribed syllabus is divided into a number of units. Thus, if five questions are to be answered in the question paper, the syllabus is divided into five units. Thereafter, all the teachers teaching the subject are informed of the same. These teachers are invited to submit questions and model answers to these questions. For such of the questions as are finally accepted for inclusion in the question bank, the teachers are paid an honorarium by the examining body.

6. The board appointed to prepare the question bank scrutinises all the questions received from the teachers. After these questions are suitably modified where necessary, they get included in the question bank. In the question bank as prepared finally, questions are grouped into the different units into which the syllabus is divided. Great care is taken to see that all questions in one group corresponding to a unit of the syllabus are of the same standard. (If they are not, when the question banks are supplied to

the teachers and the students, they would comment on the same and this would lead to an improvement.)

7. Suppose one question is drawn at random from each of the units of the question bank. The set of questions so obtained will constitute a fair and well-designed question paper. Therefore, using the question bank, a number of question papers can be drawn. All the question papers would be well-designed and would be of the same standard. Therefore, any teacher in any autonomous institution can pick up the requisite number of questions from a question bank at random and prepare a paper. Further, all the questions in the question bank can be used throughout the year for assisting the students in their studies. Since all the questions are known earlier, there will be no element of surprise on seeing a question paper. However, since the question bank contains a very large number of questions, it will be difficult to predict which of the questions would be asked in an examination.

8. It will be seen from the above that the question bank assists better preparation and the setting of a well-designed question paper. There is no question of leakage of questions because a candidate who has prepared himself for all the questions in the bank merits passing anyway.

9. Such question banks are expected to be revised every year even when the syllabus remains the same. The revision may consist in dropping a few questions, modifying a few questions on the basis of comments received from teachers or adding new questions. Therefore, the question bank will continue to be a live component in the academic framework.

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SECTION II

RECOMMENDATIONS OF
ZONAL WORKSHOPS ON
EXAMINATION REFORM

(A follow-up study of the Plan of Action)

1. INTRODUCTION

The University Grants Commission sponsored four zonal workshops to discuss problems relating to examination reform, autonomous colleges and postgraduate education. The workshops were held at Madurai on July 25-27, 1974, at Ahmedabad on August 3-5, 1974, at Chandigarh on September 16-18, 1974 and at Bhubaneswar on November 26-28, 1974. 'Examination Reform-- A Plan of Action', prepared by an expert committee appointed by the Union Minister for Education and endorsed by the University Grants Commission formed the basis of discussion on examination reform. The workshops discussed the broad objectives of examination reform and made specific recommendations for introducing necessary changes in examinational procedures with a view to improving their validity, reliability and objectivity. The main focus was on internal assessment, question banking and grading. These are important issues on which we now have the consensus of the academic community in the country, as presented in the following summary for the guidance of universities and colleges.

2. INTERNAL ASSESSMENT*

The introduction of internal assessment in contrast to the present point-in-time examination is an important step towards the integration of teaching, learning and examinations. At present the performance of the student in university/examination is judged entirely on the basis of end-of-course examinations. This does not have any backwash effect on teaching and learning. Moreover, such examinations are usually of the 'essay' type which test the ability of the student to express his ideas fully and his capacity to recall facts and information leading to regurgitation of knowledge. The introduction of internal assessment will enable universities to test other skills and objectives like the application of knowledge, conceptualization, analysis and synthesis.

There is need to clarify the meaning of the term 'Internal Assessment'; since it does not only indicate the replacement of external examination by assessment by a teacher who teaches the course; it really means that evaluation should become a continuous process. It should be clearly understood

*By 'internal assessment', what is implied is continuous sessional evaluation.

that the purpose of internal assessment is not to increase the frequency of examinations or to supplement the final examination by mid-term examinations. The main purpose is to integrate teaching and evaluation and to test those skills and abilities which cannot be tested through a written examination at the end of the term or course. For this purpose, internal assessments should be properly diversified so that through it we can test the writing ability of the student, his capacity to do field work or project work or laboratory practicals, his participation in seminars, tutorial etc., his grasp of the subject through his ability to write synopses of articles in learned journals, review reference books and use source materials etc. The performance of students should serve as a feedback for improving the contents of courses, methods of teaching and the teaching-learning process in general.

It should be clearly understood that internal assessment is not meant to enforce discipline. Its purpose is entirely academic to encourage students to apply themselves assiduously to their studies and to enable teachers to realise the effectiveness of the teaching-learning process.

The question of giving due weightage to the various skills and abilities tested through internal assessment and external examinations is important and in any scheme of things internal assessment must receive adequate weight in order to be meaningful. However, the details of credit to be given for each test or assignment have to be decided by each department in relation to the objectives of the course and the level at which the course is offered. There can be no cut and dried formula for this but the important point is that this information should not be lost in the academic profile of the student.)

The introduction of internal assessment will, irrespective of the methods employed, increase the responsibility of teachers in regard to evaluation and new methods of teaching and assessment. Teachers have, therefore, to be prepared to shoulder this responsibility. It should however, be possible in some of the teaching departments to utilise the services of junior and senior research fellows to assist in evaluation of the performance of the students. This would also give the research fellows some sense of involvement in the teaching and evaluation process of the department.

The introduction of internal assessment has in the past led to some difficulty for it was adopted without adequate preparation. It is necessary to involve the students and teachers in the basic philosophy that should inspire and inform the scheme of internal assessment. The following safeguards are suggested so that the provision is not misused for overestimating or underestimating the performance of students by individual colleges in order to out-compete the other colleges or by some unscrupulous teachers to favour some students and victimize others.

a. Internal assessment may be tried out, at least to begin with, first in the unitary universities, well-established postgraduate departments and autonomous colleges before it is extended to the affiliating universities or to the undergraduate stage of education.

b. It is necessary that the marks or grades obtained by the students are made known to them immediately after evaluation is completed. Another important feature that should be built into the scheme is that of correcting the answer scripts and discussing these in some detail in the tutorials or individually so that internal tests serve as a feedback.

Candidates who wish to represent against the grade awarded to them should be given an opportunity to do so and the matter considered by a scrutiny committee. Revaluation may be done, if necessary.

c. The records of internal assessment should be maintained so that a proper scrutiny or statistical analysis can be carried out.

The marks of internal and external examinations should be kept separate for they measure different abilities and combining the two is scientifically unsound. Divisions or grades should also be indicated separately for external examinations, internal assessment, laboratory practicals etc.

In so far as practical work is concerned, assessment should be a continuous process and there is no need for end-of-course practical examinations. The marks in practicals in science should also be shown separately on the certificate or degree awarded to the student.

d. Teachers should not be allowed to take up private tuitions otherwise the scheme of internal assessment will not work in view of vested interests.

e. Internal assessment should be based on concrete performance as far as possible.

f. It may be noted that some affiliating universities have also introduced the internal assessment system. This is welcome but the university concerned should ensure that the marks in internal assessment and external examinations are not combined and should also consider suitable scaling procedures, revaluation, sample-checking or monitoring by the University or a central agency, in case it is considered necessary to work out an overall grade.

3. QUESTION BANKS

The concept of Question Banks has been evolved to eliminate some of the defects of setting examination papers inherent in the present system of university examination. Usually, a senior teacher or a board of paper setters set the examination papers but all the members of the board are not those who teach the subject. Further, the time given to them for set-

ting a question paper is not generally adequate. The questions may sometimes, be vague, ambiguous and poorly designed. The most serious deficiency is that they do not reflect the objectives and contents of the syllabus.

Question banks can be helpful in the context of the revision and modernisation of courses of study in the different humanities, social science and science subjects. In fact, some of the panels in sciences have already undertaken exercises towards modernising the syllabus as well as drawing up a list of questions relating to the syllabus and its objectives. One has, therefore to look at the question bank as an important means of bringing about necessary changes in the syllabus and close correspondence between the syllabus, its objectives and the question papers.

In the present set up of external examinations, it may be difficult to involve all the teachers in a subject in the setting of a question paper. The result is that teaching and evaluation must remain divorced from one another without any interaction between the two. Question bank is one way through which teachers in a subject can become fully involved in the framing of questions.

The concept of question bank is particularly relevant in the context of internal assessment in the affiliating type of universities for, with the availability of question banks, it becomes possible to obtain uniformity of standards when internal assessment is introduced or even when autonomy is granted to selected colleges. It may also be mentioned in this connection that there is already a question bank in the mind of every teacher from which he draws the questions for testing the students year after year. What is now being suggested is that this bank be socialized so that the expertise of the teacher becomes available to the entire academic community.

The procedure of setting a question-bank will be as follows :—

a. The examining body appoints a board of high level experts to prepare a question bank. This board functions throughout the year and replaces the old board of paper setters. This board examines the syllabus and the assigned duration of the question paper. Thereafter, it decides on the number of questions required to be answered in the examination within the set time.

b. On basis of this number, the prescribed syllabus is divided into a number of units. Thus, if five questions are to be answered in the question paper, the syllabus is divided into five units.

c. Thereafter all the teachers teaching the subject are invited to submit questions. Alternatively, workshops may be organized for developing questions in different subjects.

d. The board appointed to prepare the question bank scrutinises all the questions received from the teachers. After these questions are suit-

ably modified where necessary, they get included in the question bank.

e. In the question bank as prepared finally, questions are grouped into the different units into which the syllabus is divided. Great care is taken to see that all questions in one group corresponding to a unit of the syllabus are of the same standard (If they are not, when the question banks are supplied to the teachers and the students, they should comment on the same and this would lead to an improvement).

f. Such question banks are expected to be revised every year even when the syllabus remains the same. The revision may consist in dropping a few questions, modifying a few questions on the basis of comments received from teachers or adding new questions. Therefore, the question bank will continue to be a live component in the academic framework.

g. Instead of having a central bank of questions, it is much better that each university develops its own question bank, suited to the contents and objectives of the syllabus it has framed for a given subject. For this purpose, the contents and objectives of each syllabus should be spelt out as clearly and in as many details as possible.

h. The questions selected for a given unit of a syllabus should be of various types.

i. Only such questions should be selected, which leave least ambiguity in answers.

j. In the beginning, only a few selected autonomous colleges in addition to universities should set papers for end-of-course examinations from the question bank. Other colleges may use the question papers set by the university from the bank. In the light of the experience so gained, the question of extending the privilege to other colleges may be considered.

Possible difficulties in the operation of the question bank are discussed below :—

i. Certain subjects like language, mathematics, statistics and engineering (especially those subjects where numerical questions may have to be set) may not be entirely suitable for the development of a question bank. This needs to be discussed for even, in such cases, the question bank may cover a portion of the syllabus. The numerical values indicated in the questions can be so changed that the general format of the questions remains the same, which means that the questions included in the bank will be illustrative of the design of good question but actual questions asked in the examination will have different numerical values. It may also be mentioned in this connection that according to some experts in testing subjects like mathematics, engineering etc., are best suited for the development of question banks for in these subjects the formulation of objective and sampling of contents is much easier. Teachers of these subjects can also ex-

plore other possibilities to make the question bank suit their particular objectives.

ii. One of the abilities required of a student is that he should be prepared to meet unforeseen situations. If the questions are known to the students there will be no element of surprise and consequently the ability to adjust to new situations may not be tested. One way of dealing with the problem is to include some questions from outside the bank in the question paper. The expert committee which evolved the Plan of Action on Examination Reform itself suggested that 25 per cent of the questions can be from outside the bank. It also needs to be emphasized that the question bank will have problem-oriented questions, which are not stereotyped, as also a mix of essay-type, short-answer and multiple choice type questions, which would enable us to test different kinds of skills and abilities.

iii. There is a fear that the question bank may lead to the publication of guides and notes which may create problems of security as the material can be smuggled into the examination hall and can lead to copying or use of unfair means. This problem will be met if the question bank is kept under constant review, as already suggested. It is also possible to have the requisite number of questions on tickets which may be picked up by students on a random basis. In any case, it will not be easy to prepare cheap guides in view of the questions being problem-oriented and if a student can prepare 100-150 of such questions in a paper that is what is expected of him. Also, the possibility of mass-copying will be curbed by the limited time available to a student for answering questions that are problem-oriented. It may be pointed out that our standards are low not because there are guides and cheap notes in the market but there are guides and cheap notes because our standards are low.

iv. The recommendations made above should not be viewed in isolation. The introduction of a system of internal assessment would reduce the strain on the examinees and hopefully mitigate some of the evils like mass-copying and use of unfair means that have crept into the present examination system. If questions are problem oriented as envisaged in the development of question banks, students will not, by and large, resort to unfair means.

4. GRADING

The suggestion that we should have the grade system instead of the present marking system was endorsed by all the workshops. The objectives and mechanics of a system of grading are detailed in Section III of this brochure.

SECTION III

**PRINCIPLES AND MECHANICS OF
THE SYSTEM OF GRADING IN
THE UNIVERSITIES**

(Based on the Recommendations of the Zonal Workshops)

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PRINCIPLES AND MECHANICS OF THE SYSTEM OF GRADING IN THE UNIVERSITIES

1. Introduction

1.1 The suggestion that we should have the grade system instead of the present marking system is based on a number of important considerations. Firstly, under the present examination system, a student securing 59.5% marks gets a second division whereas a student securing 60% or more gets first division. This would be a perfectly valid approach if our system of marking were perfectly valid and foolproof. Studies and investigations have, however, shown that the present marking system is subject to large-scale errors and also the idiosyncrasies of examiners. The first type of uncertainty arises from the fact that in awarding marks, it is assumed that there is a 'true mark' for each student. Statistical analysis of marks in public examinations has shown that there is a 50% chance that the error in marking is greater than 5%. The second type of uncertainty arises from the fact that it is difficult to define the performance of the candidate which is to be measured. The mark may be a measure of the candidate's ability or knowledge or memory or intelligence or power of expression or a combination of one or more of these characteristic. Therefore, the marks assigned will be a subjective measure varying from examiner to examiner.

1.2 Secondly, the lack of reliability of marks would mean that cut off points we use for the award of divisions and for declaring pass or fail are purely arbitrary. Yet so much credence is given to marks in public examinations that a student's career might be determined by his division in the examination or by the fact that he passed or failed.

1.3 Another important consideration is that in combining the marks in different subjects or papers, use is not made of recognised statistical procedures. The present practice of combining them to get an absolute total is incorrect as the final ranking of a student is affected by the average marks in a subject as well as by the spread of marks. If we combine marks in two subjects, say Chemistry and Mathematics and marks in Chemistry vary from 30 to 60 while marks in Mathematics vary from 5 to 95, the result will be that Mathematics will receive approximately three times the weight of Chemistry. In effect, we shall be evaluating the performance of the student on his Mathematics rather than his Chemistry.

1.4 This also leads to a great deal of irrationality in the choice of subjects or papers and in regard to the time given by a student to the study of particular subjects or paper.

1.5 Different universities use different cut-off points for declaring students pass or fail or for placing them in the first, second or third division or class. This affects the migration of students from one institution to another.

1.6 It is, therefore, necessary that the performance of a student is declared in terms of grades rather than in terms of marks. However, the introduction of a system of grading cannot be isolated from the problem of educational reform in its totality involving continuous evaluation, restructuring of courses, improved methodology of teaching and modernisation of syllabi. Grading is only one step towards removing some of the irrationalities that characterise our present system of examinations and should lead to other reforms, keeping in view the essential unity of teaching and evaluation.

1.7 In introducing the system of grading in the universities it is of the utmost important that a certain degree of uniformity is ensured especially in regard to the particular scale adopted by the universities and the points assigned to each of the grades. In the absence of such uniformity, it would be difficult for the employing agencies in the public and private sectors, committees for admission or students to postgraduate and research courses, committees for the award of fellowships etc. to interpret the grades awarded by the different universities in a meaningful way.

2. Objectives

(a) *A more uniform means of evaluation among different universities*

At present universities use different cut-off points for award of divisions and the minimum pass percentages in different subjects are on an absolute rather than a relative scale. If the grading system is adopted on a coordinated basis, this would ensure greater uniformity by establishing relationship between various grades and their meanings in qualitative terms.

(b) *A more reliable means of evaluating learning achievements*

It would reduce the element of subjectivity and arbitrariness which marks the present system of marking. Marking on the usual 101-point scale leads to large scale errors and erodes the confidence of the society in our techniques of evaluation and the educational system as a whole. With the introduction of grading system into well-defined bands of ability in place of points, the margin of variation and errors would be reduced.

(c) *Better comparability among disciplines and within the disciplines by the use of a common scale*

The use of numerals suffers from the disadvantage of the full range of marks not being used in some subjects or papers so that the performance of candidates in different subjects or papers is not comparable. This effect is minimised in the grading system.

(d) *Greater internal coherence in the choice by students of different subjects or papers.*

Under the system of grading the scales in the different subjects or papers will be more comparable and, therefore, the student's choice will be more in keeping with his aptitude and ability. Consequently, the student's choice of subjects of study and methods of learning are not likely to be vitiated by extraneous considerations.

(e) *Greater mobility of students*

The grading system when adopted by all universities will facilitate the migration of students from one university to another within a state or from one state to another.

3. Scale

3.1 There is a consensus on having a 7-point scale as it would keep evaluation within reasonable limits of accuracy and "spacing within a grade point" will not become so wide as in the case of the 5-point scale.

3.2 In this context, it may be noted that the agricultural universities and other technical institutions having a 5-point scale admit students under more favourable conditions and their student groups are more homogenous. The 5-point scale may be appropriate for them, but in respect of courses, offered by the universities in general, variations are much larger and the need for classifying students would be met more adequately by the 7-point scale.

3.3 There should be no objection if within a university, some faculties like engineering, medicine etc. use a scale other than the 7-point scale for purposes of grading.

3.4 The rationale of the 7-point scale is that it conforms, in qualitative terms, to the distinctions normally made by teachers in classifying student performance.

3.5 The distinctions normally made are : outstanding, very good, good, average/fair, below average/satisfactory, poor and very poor. These may be indicated by the following letter grades respectively: O,A,B,C,D,E, and F.

4. Mechanics of Grading

4.1 There was a broad consensus in favour of direct grading by the teachers.

4.2 Each answer to a question in the answer script should be separately evaluated. This will facilitate reassessment by the head examiner or subsequent reevaluation, if necessary. The overall grade for the answer script or for internal assessment can be calculated on the basis of points assigned to each grade. The following points are suggested : O-6; A-5; B-4; C-3; D-2; E-1; F-0. If the questions are not of equal value then points will have to be assigned to each of the grades according to the value of the question. An illustration from the cover page of an examination script is given below ;

Question No.	1	2	3	4	5	Total
Grades	O	A	A	O	A	
Grade points	6	5	5	6	5	27

The teachers may communicate the grade points to the examination office in respect of the papers examined by them. The office may total up the points in different papers to arrive at the grade for each subject or for the course as a whole. Rounding off should be done only at the final stage of the operations.

Now suppose there is a paper having three sections—Section I having multiple-choice type questions; Section II short-answer questions and Section III essay-type questions and suppose all the Sections carry equal weight. For the sake of convenience, the student may be required to answer 12 multiple-choice type questions; four short-answer type and two essay-type questions. Since each Section carries equal weight, the marks in Section I will constitute the grade points; the grade-point aggregate of Section II will be divided by two and the grade points of Section III will be totalled up as such. The cover-page of the answer-script will be as under:—

Section I

Question number	1	2	3	4	5	6	7	8	9	10	11	12	Total
Marks	1	0	1	0	1	1	1	0	1	1	1	0	8

Section II

Question number	1	2	3	4	Total
Grade	O	A	A	B	
Grade points	6	5	5	4	20
Divide by two					= 10

Section III

Question number	1	2		Total
Grade	A	B		
Grade points	5	4		= 9
Grand total				= 8+10+9 = 27

Please note that in the above example the total number of questions is equivalent to six in the conventional examination and the maximum points a student can secure is 36.

Now suppose a question has two, three or four parts in the essay-type question. The grade-points in that question have to be divided by the number of parts in the question and rounded off.

We now take example one of having five questions and see how grades in internal assessment are to be shown on the grade-card. Suppose internal assessment carries a weight in the ratio of 3 : 5. This makes it equivalent to three questions and whatever form internal assessment takes each student is to be awarded three different grades and the grade points worked out and aggregated.

The grade card of the student for an eight paper course is illustrated below :—

Grade-Points

<i>Paper</i>	<i>Sessional Assessment</i> (Maximum 18)	<i>Final Examination</i> (Maximum 30)	<i>Total</i>
I	12	27	
II	14	25	
III	10	20	
IV	15	24	
V	10	28	
VI	16	22	
VII	12	23	
VIII	9	24	
Total	98*	193**	291†
Grade point average	4.08	4.82	4.54
Grade	B	A	A

*Divided by 8 × 3 **Divided by 8 × 5 †Divided by 8 × 8

In the undergraduate examinations, grades in different subjects may also be shown by combining the grade points in the different papers of that subject.

4.3 Marks given by teachers can be converted into grades with the help of distribution tables, as explained below. This is a purely interim measure that may be tried out in 1976-77. In the meantime teachers would have been fully oriented and the universities should switch over to direct grading by the teachers from the next academic session.

Take the top marks usually awarded in the subject and university under consideration and award it an O. Award E and F to the fail mark and distribute the remaining marks on the basis of equal intervals.

For example, suppose the pass mark is 35 and the highest mark awarded in History during the last three years is 74, the distribution of grades will be as under :

67 and above	O
59-66	A
51-58	B
43-50	C
35-42	D
25-34	E
24 and below	F

Now suppose the highest mark awarded in Mathematics during the last three years is 99, the distribution will be as under :

87 and above	O
74-86	A
61-73	B
48-60	C
35-47	D
25-34	E
24 and below	F

Similar tables may be constructed for each subject or paper and this will immediately provide a more rational basis for combining grades in different subjects.

4.4 In case it is found that some department or colleges are over-estimating or under-estimating the performance of their students in internal assessment or external examinations, this can be test checked by means of the normal distribution curve of frequency distribution of marks in the earlier years, either by the university itself or by a central agency.

4.5 The grades in internal assessment and external examinations

should be shown separately. In this connection, attention is called to the problem of calculating an overall grade on the basis indicated in para 4.2 in case an overall grade is to be indicated. This will have to be done after scaling grades in internal assessment and giving due weightages to the two sets of measurement.*

4.6 Weightage to course units should be given on the basis of contact hours including lectures, tutorials, seminars, practicals, organised library work, etc and keeping in view the objectives of the course.

5. Grade-point Average

5.1 Along with the grade of the student in each subject, the grade point average calculated upto two decimal points could also be indicated. This will give a large number of discriminations and enable us to distinguish even among the students belonging to a certain category. Thus, the employing agencies in the public and private sectors, and various admission committees will not be put to difficulty in this regard.

5.2 In case some prizes, medals, etc., have to be awarded and there are students securing the same grade point average, it might be necessary for a committee to review their performance with a view to ranking them in order of merit.

5.3 Universities which are not on the semester or credit system can calculate the grade point average easily since in their case the weight for different papers or subjects is the same. Let us assume that there are 8 papers for the course each carrying 100 marks and that a student secures grades O,A,A,B,A,B,A, and B in different papers. The grade point average of the student will be :

$$\frac{6+5+5+4+5+4+5+4}{8} = \frac{38}{8} = 4.74 = A$$

On the other hand, if each of these 8 papers carries weights or credit

*The UGC Implementation Committee on Examination Reforms discussed the question whether the marks of internal assessment and external examinations should be combined under the following heads.

(i) Overall grade only (ii) Subjectwise or paperwise grades only (iii) Subjectwise or paperwise grades as well as over-all grade.

The committee was of the view that alternative one may be unsatisfactory as under this method, the real performance of a student is not fully reflected and the employing agencies and admission committees etc, may not get an adequate idea of the performance of a student in relation to various skills and abilities. Universities should have the freedom to choose between two or three but if an over-all grade is to be given, it would be desirable to moderate the evaluation done internally so that the deviations are not very marked. As already indicated this could be done on the basis of the results of external examinations in the particular department in the university or college.

in the order of, let us say, 4, 2, 1, 4, 2, 2, 4, 4, the grade point average will be calculated as under :

$$\begin{array}{r}
 6 \times 4 = 24 \\
 5 \times 2 = 10 \\
 5 \times 1 = 5 \\
 4 \times 4 = 16 \\
 5 \times 2 = 10 \\
 4 \times 2 = 8 \\
 5 \times 4 = 20 \\
 4 \times 4 = 16 \\
 \hline
 109 \\
 \hline
 \end{array}$$

$$\text{Grade point average} = \frac{109}{4+2+1+4+2+2+4+4} = \frac{109}{23} = 4.75 = A$$

5.4 In so far as the minimum grade point average in each subject or in regard to the course as a whole is concerned this will have to be indicated by each university according to its needs and requirements, keeping in view the objectives of each course. It is however, recommended that the minimum grade-point average for courses in general should not be less than 2.00; while a higher average may be prescribed for postgraduate and professional examinations.

5.5 In order to avoid wastage and ineffective use of our educational resources, it is suggested that the student maintains a minimum grade point during each of the terms and semesters.

5.6 If a student secures the minimum grade point average in the aggregate but has F in an individual paper he may be allowed to go on to the next class but will have to clear that paper or offer a new paper in lieu thereof provided it was not a part of the core-papers.

5.7 As already indicated, rounding off should be done only at the final stage of arriving at an overall grade for a subject or course as the case may be.

6. Grievance Machinery

A suitable machinery be set up by each of the universities to go into the grievances of students in respect of their internal and external assessments. In so far as internal assessment is concerned, it is necessary that the grades obtained by the students are made known to them immediately after evaluation is completed. Another important feature that should be built into the scheme is that of correcting the answer scripts and discussing

these in some detail in the tutorials or individually so that internal tests serve as feed-back. Candidates who wish to represent against the grade awarded to them should be given an opportunity to do so and the matter considered by a scrutiny committee. Revaluation may be done, if necessary.

7. Interpretation of Grades

On the understanding that all the universities will adopt the grading system, interpretation of grades in terms of marks will not be necessary and the universities should take a firm decision that they will indicate the grades and the grade-point average only and leave it to the outside agencies to interpret them.

8. Implementation

8.1 The system of grading may be adopted at the postgraduate level beginning with admissions in June/July 1976 so that students appearing in 1977 examinations or earlier are evaluated on the basis of grades.

8.2 The switch over to the grading system in respect of the undergraduate examinations may be done beginning with admissions in June/July 1977.

8.3 The intervening period should be fully-utilised for the necessary preparatory work including consideration by the concerned university bodies, if necessary, and orientation of teachers and students.

8.4 Each university or groups of universities, with the assistance of the UGC may set up a machinery for continuing and periodic evaluation of the grading system.

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