UNIT 27 GUIDELINES FOR SETTING A GOOD QUESTION PAPER

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27.0 OBJECTIVES

In this unit our aim is to make the teacher aware of

- the attributes of a good test, e.g., validity, reliability and usability
- the steps required to construct a test
- the necessity of a Blue Print on the design of a test
- the physical assembling of questions in a paper.

After the question paper is set and marking scheme finalized, you should do a detailed question-wise analysis which will inform you of the strengths and weaknesses of the question paper.

This will help you to become better paper setters.

27.1 INTRODUCTION

Examinations have always been an important part of the total educational process. Examinations are designed and administered at different stages of education and their results are used for various purposes like improvement in learning, grading and classification of students, selection for admission to higher classes or for scholarship, certification and for providing guidance for future, etc.

In our country, written examinations are the most commonly used technique of testing students’ achievement. Not only are they conducted by Boards of School Education as public examinations but also by each and every school in the country as terminal and annual examinations. Besides these, the written tests are organized by schools in each subject every now and then. In fact, the evaluation of students’ scholastic achievement is based on these written tests and examinations.

A question paper is the basic tool used in a test or examination. It is usual for a teacher to prepare a test by assembling questions on the spur of the moment without taking into consideration the characteristics of a good test. But to serve any useful purpose a test must possess certain attributes without which it will be a poor measuring instrument.
27.2 ATTRIBUTES OF A GOOD TEST

The three main attributes of a good test are validity, reliability and usability.

Validity

Validity is the most important characteristic of a good test. Validity of a test is the extent to which it measures what it attempts to measure. That is to say that a test should conform to the objectives of testing. For example, in an English Language Test where the purpose of testing is to measure the students' ability to manipulate language structures, the following test item will not be valid:

Name the part of speech of each underlined word and also state its kind: His old typewriter should be in a museum.

This item is invalid because it is testing the students' knowledge about the language and not their ability to manipulate structures.

Though there are many types of validity, for a classroom teacher it is enough to know about the following three types:

1. Face Validity

Face validity means that a test, even on a simple inspection, should look valid. For example in a language test the following item is totally invalid, as it does not test language but the computation skill of the students.

The train starts from New Delhi at 8:10 hours and reaches Kanpur at 14:30 hours.

How much time does the train take to reach Kanpur from New Delhi?

To establish face validity of a test, the examiner or the teacher should go through the test and examine its content carefully.

2. Content Validity

Content validity is very important in an achievement test as an achievement test tries to measure some specific skills or abilities through some specific content. To obtain content validity it is necessary that all the important areas of the course content are represented in the test and also that the test covers all the instructional objectives. In other words, the test should contain questions on every important area of the content in appropriate proportion and the questions should be framed in such a way that all the objectives of that course are tested properly. Content validity can also be ensured by analyzing the course content and the instructional objectives to be achieved through it and by taking the test items from both these things.

3. Empirical Validity

Empirical validity is also known as statistical validity or criterion-related validity as to ensure this a criterion is taken (which may be a standardized test, another teacher's ratings on a class test, students' scores on a previous test, or the students' grades on subsequent final examination, etc.) and the scores of students are correlated with their scores on the criterion test. If the scores correlate positively the test may be said to have empirical validity. Empirical validity is important because it shows statistically that a test is valid, i.e., it measures well what it intends to measure.
Evaluation

Reliability

It refers to the consistency with which a question paper measures the achievement of students. In other words, if the test is to be reliable the chance errors must be zero. Unreliability occurs at two stages:

1. Firstly, at the level of examinee, when she is not able to understand and interpret the question properly. This may be due to vagueness in language of question or due to some other reason. This can be removed if the questions are pointed and free from ambiguity.

2. Secondly, at the level of examiners. In the absence of standard marking scheme, examiners are free to interpret and mark the questions in their own way. This contributes greatly to unreliability. A detailed marking scheme improves the reliability aspects of the question paper. Objective type and very short answer type questions are more reliable than essay-type questions. Thus, by including these questions and also by increasing the total number of questions in a question paper reliability can be increased.

Usability

Usability or practicability is the third characteristic of a good test. There are a number of practical factors that are to be considered while preparing or selecting a test for use.

The first thing to be kept in mind is that the test should be of such a length that it can be administered within stipulated time. If the test is too long or too short it may not be practical to use as a classroom test.

Secondly, it is to be seen that the test is easy to administer and that clear cut directions are provided in the test so that the testees as well as the test administrators can perform their tasks with efficiency. Moreover, the facilities available for administration should also be kept in view as in case of oral tests, tape recorders may be required. If a teacher doesn't have the facility of tape recorder, she should not take up a test requiring the use of one.

Thirdly, scorability is also to be considered while using a test. When large number of students are involved, a test which can be scored quickly (preferably by machine) is to be selected but when only one class is to be tested, perhaps a test consisting of subjective questions may also be used.

Check Your Progress - 1

1. What is validity? How would you ensure validity of a question paper?

2. What is reliability? How can teacher make a question paper more reliable?
27.3 STEPS OF TEST CONSTRUCTION

Once the teacher or the test constructor is aware of the characteristics that a good test must possess, s/he can proceed to construct a test, which may be either a unit test or a full-fledged question paper covering all the aspects of the syllabus. Whether the test is a unit test for use in classroom testing or a question paper for use in final examinations, the steps of test construction are the same, which are as follows:

1. Prepare a Design

The first step in preparing a test is to construct a design. A test is not merely a collection of assorted questions. To be of any effective use, it has to be planned in advance keeping in view the objectives and the content of the course and the forms of questions to be used for testing these. For this weightage to different objectives, different areas of content, and different forms of questions are to be decided, along with the scheme of options and sections, and these are the dimensions which are known as the design of a test.

a. Weightage to Objectives

To make a test valid, it is necessary to analyze the objectives of the course and decide which objectives are to be tested and in what proportions. For this marks are allotted to each objective to be tested according to its importance. In English language testing the three major objectives are knowledge of the elements of language, comprehension and expression. The weightages to all these three objectives may be decided in percentages. For example, for a test of 50 marks the following weightages may be decided.

<table>
<thead>
<tr>
<th>Objective</th>
<th>Percentage of Marks</th>
<th>Marks allotted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>10%</td>
<td>5</td>
</tr>
<tr>
<td>Comprehension</td>
<td>40%</td>
<td>20</td>
</tr>
<tr>
<td>Expression</td>
<td>50%</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>50</td>
</tr>
</tbody>
</table>

b. Weightage to different areas of Content

It is necessary to analyze the syllabus and allot weightages to different areas of content. This is again done to endure the validity of the test. A hypothetical example is given below for an English language test showing weightages to content units for a class X test.

<table>
<thead>
<tr>
<th>Content/Areas</th>
<th>Percentage of Marks</th>
<th>Marks allotted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading skills</td>
<td>30%</td>
<td>15</td>
</tr>
<tr>
<td>Writing skills</td>
<td>30%</td>
<td>15</td>
</tr>
<tr>
<td>Textual content</td>
<td>40%</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>50</td>
</tr>
</tbody>
</table>

c. Weightages to different forms of Questions

After analyzing the objectives and the content, it is to be seen how they are to be tested. A particular objective and content can be tested more appropriately by a...
particular form of questions. So, different forms of questions are to be included in the test for testing different objectives and contents. For this a number of different types of questions to be included in the test and the marks carried by each of them are decided. This takes care of the reliability of test.

As an illustration, hypothetical weighting to different forms of questions in our 50 marks question paper for class XI is given below:

<table>
<thead>
<tr>
<th>Forms of Questions</th>
<th>No. of Questions</th>
<th>Marks allotted</th>
<th>% of marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essay type</td>
<td>3</td>
<td>15</td>
<td>30%</td>
</tr>
<tr>
<td>Short answer type</td>
<td>9</td>
<td>23</td>
<td>46%</td>
</tr>
<tr>
<td>Very short answer type</td>
<td>8</td>
<td>35</td>
<td>70%</td>
</tr>
</tbody>
</table>

**d. Scheme of Sections**

The design of a question paper may also indicate the scheme of sections for the paper. For example, a question paper may consist of both multiple choice questions and supply type questions. Such a test may have two sections, one consisting of multiple choice questions and the other consisting of supply type questions like essay type, short answer and very short answer type questions. In case the examiner wants, the question paper can also be divided into sections area wise like one section for reading comprehension, another for writing tasks, third for grammar and so on. If the multiple choice questions are not substantial in number, there is no need to keep a separate section.

**e. Scheme of Options**

The design may indicate the pattern of options i.e., the complete elimination of overall options or retention of internal options within limits. No options are to be provided in case of multiple choice, short answer and very short answer questions; for essay type questions the teacher may like to provide internal options. While providing options, it may be kept in mind that the options are comparable in terms of objectives to be tested, the form of questions and the difficulty level of the questions. As far as possible, the major area of content should also be the same in the options.

While planning the paper, it should be so planned that the difficulty level of the questions varies so as to cater to all the students of the class and also to discriminate between high achievers and low achievers. The suggested percentage for easy and difficult questions is 20% whereas average questions can be 60%. The difficulty level of the test paper can be varied according to the level of the students. If the class has a large number of good students, then 25% to 30% difficult questions can be given.

**Check Your Progress – 2**

1. What is the purpose of preparing a design of a question paper?

2. What different decisions are to be taken in order to prepare a design?
3. Prepare a design of a class test of 30 marks in English for the class that you are teaching.

2. Preparing a Blue Print

After deciding on the design of the test, the blue print is prepared. The blueprint is a three dimensional chart which shows the placement of each question in respect of the objective and the content area that it tests. It also indicates the marks carried by each question. It is useful to prepare a blue print so that the test maker knows which question will test which objective and which content unit and how many marks it would carry. Without a blue print only the weightage are decided for objectives, content areas and types of questions. The blue print concretizes the design in operational terms and all the dimensions of a question (i.e., its objective, its form, the content area it would cover and the marks allotted to it) become clear to the test maker.

There is no set procedure for preparing a blue print. However, the following sequential steps would help in preparing a good blue print.

1. Transfer the decisions regarding weightages to objectives – Knowledge, Comprehension and Expression on the proforma.
2. Transfer the weightages already decided for different content units. For this, list the content units under the content areas in the column given at the left hand and the marks under the column of total given at the right hand side.
3. Place the essay type questions first in the blue print. Place them under the objectives which you want to test through these questions. The marks of the questions may be shown in the column under the objectives and the number of questions may be given in brackets.
4. If in a question, marks are to be split between two objectives indicate it with asterisks and a dotted line as shown in the example.
5. After placing the essay type questions, place the short answer type questions under the objectives and beside the content unit that you want to test through them.
6. Place the very short answer type questions in a similar way.
7. Place the multiple choice questions in the same way – marks outside the bracket, number of questions inside the bracket.
8. Calculate the subtotals of all the questions under all the objectives.
9. Calculate the totals. Your total should tally with the weightages of objectives and content units that you had already marked on the blue print.

Fill in the summary of types of questions, Scheme of Sections and Scheme of Options.
Below is given a sample Blue Print

**Subject**: English  
**Class**: XI  
**Max. Marks**: 50  
**Time**: 2 hours

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Knowledge</th>
<th>Comprehension</th>
<th>Expression</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading Skills</td>
<td>E</td>
<td>SA</td>
<td>VSA</td>
<td>E</td>
</tr>
<tr>
<td>Passage I</td>
<td>2(2)*</td>
<td>4(4)</td>
<td>20(8)</td>
<td></td>
</tr>
<tr>
<td>Passage II</td>
<td>(1)*</td>
<td>(1)*</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Writing Skills</td>
<td>2(1)*</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Letter Writing</td>
<td>(1)*</td>
<td>(1)*</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Note Writing</td>
<td>(1)*</td>
<td>(1)*</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Report Writing</td>
<td>(1)*</td>
<td>(1)*</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Textual Content</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Long Answer Questions</td>
<td>4(1)*</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Short Answer Questions</td>
<td>1(1)*</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>3(2)</td>
<td>2(2)</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: Figures within brackets indicate the number of questions and figures outside the brackets indicate marks.

Denotes that marks have been combined to form one question.

**Summary**

**Type of Questions**  
**No. of Questions**  
**Marks**

| Essay (E) | 3 | 19 |
| Short Answer (SA) | 9 | 23 |
| Very Short Answer (VSA) | 20 | 20 |

**Scheme of Sections**  
- Section A - Reading Skills
- Section B - Writing Skills
- Section C - Text Books

**Scheme of Options** - Option will be given only in essay type questions

**Check Your Progress**  
1. What is a blueprint? Why is it necessary to prepare a blue print?

2. What steps should a test maker follow in order to prepare a blue print?

3. Prepare a blueprint for the test for which you have prepared a design earlier.
3. Prepare questions based on the blueprint

After the blueprint is ready, questions are to be prepared according to the dimensions defined in the blueprint. For example, if there are essay-type questions to be prepared to test the writing skills, one letter and one report and also a short answer question on writing a notice, the test constructor should prepare these three questions along with their options which may be comparable in terms of objectives to be tested, content areas, forms of questions and the difficulty level.

While preparing questions it must be kept in mind that the question:

1. is based on the specific objective of teaching as indicated in the blueprint
2. relates to the specific content area as per the blueprint
3. is written in the form as required by the blueprint and satisfies all the rules for framing that form of questions
4. is at the desired level of difficulty
5. is written in clear, correct and precise language which is well within the comprehension of pupils
6. clearly indicates the scope and length of the answer.

Another thing to be kept in view while writing questions is to prepare the answers simultaneously because quite often the answers help in refining the questions.

Check Your Progress - 4

1. What different parameters are to be followed for writing questions for a question paper?

2. Prepare questions based on the blueprint that you have prepared.

4. Assembling the Question Paper

After the questions are prepared, they are to be assembled in a question paper form. For this, instructions are to be written. General instructions for the paper may be given on top whereas instructions for specific questions may be given just before the questions.

The order of questions is also to be decided while assembling the question paper. Sometimes it is according to the forms of questions, i.e., objective type questions may be put first, then very short answer, short answer and essay type questions or it may be according to the content as in the case of a language question paper where we may have structure questions first, then questions on unseen passage and then composition questions.

The assembling and editing of the question paper is important from the point of view of administration. For example, if the question is divided into two sections, one of which is to be collected within a specific time limit, clear instructions to do so should be mentioned and also the arrangement of questions should be such that both the sections are easily demarcated.
5. Preparing the Scoring Key and the Marking Scheme

Scoring key is to be prepared for objective type questions and the marking scheme for other questions.

The scoring key gives the alphabet of the correct answer and the marks carried by each question. The marking scheme gives the expected outline answer and the value points for each aspect of the answer.

Detailed instructions for marking are also worked out, e.g., in marking compositions, etc. It is specified as to how many marks are to be deducted for spelling mistakes or structural mistakes, or if the composition is to be graded, how it is to be done and on what basis.

The detailed marking scheme is necessary to ensure consistency and uniformity in scoring by different examiners. In other words, it ensures reliability of scoring.

6. Preparing Question-wise Analysis

After the question paper and marking scheme are finished, it is desirable to prepare a question-wise analysis. This analysis helps in tallying the questions in the test with the blueprint. It also enables us to know the strengths and weaknesses of the test better, e.g., through the analysis we can know how many topics have been covered in the syllabus, what is the difficulty level of each question and what specifications are being tested by each question. The analysis is done on following points:

i. Number of the question.
ii. Objective tested by the question.
iii. Specification on which the question is based.
iv. Topic covered.
v. Form of the question.
vi. Marks allotted.
vii. Approximate time required for answering.
viii. Estimated difficulty level.

Check Your Progress

1. What two things are involved in assembling a paper? Why is it important?

2. Why should a paper setter prepare a marking scheme?

3. How is question-wise analysis helpful to the paper setter?
4. Assemble and edit your question paper. Prepare a marking scheme and question-wise analysis.

27.4 LET US SUM UP

We have given you guidelines to set a good question paper. If a paper setter follows the steps discussed above, the question paper will be a better question paper as it would test the predetermined objectives, cover all the content areas and have different forms of questions of varying difficulty level.

A word of caution is necessary here. Merely knowing the steps of preparing a question paper is not enough. A teacher, to be a good paper setter should know how to write good questions. This is something which one learns from practice and writing and reviewing more and more questions. One should also have a very clear understanding as to which objective can be tested through which form of question.

In fact preparing a good question paper requires an understanding of instructional objectives, forms of questions and the technique of preparing a question paper which a teacher may acquire through practical training under the guidance of experts.

27.5 KEY WORDS

Validity: the extent to which a test measures what it claims to measure.
Reliability: the extent to which an assessment procedure measures consistently.

27.6 SUGGESTED READINGS


ANSWERS

Check Your Progress - 1

1. What is validity? How could you ensurp validity of a question paper?
   Ans. Refer to section on validity.
   Validity means truthfulness. Validity of a test is the extent to which it measures what it attempts to measure. Validity can be ensured by the following measures:
a. ensure that all the objectives of testing figure in the test.
b. do a content analysis and ensure that all important areas are represented in the test.
c. correlate the scores of the students with their scores in a previous test.

2. What is reliability? How can a teacher make a question paper more reliable?
   Ans. Reliability refers to consistency of test results. To make a paper more reliable the following measures can be taken.
   a. make the questions precise and simple without any vagueness.
   b. prepare marking scheme so that all the examiners mark the answers in the same way.
   c. use more objectives type and very short answer questions more in the question paper than essay type questions.

3. How would you take care of the usability of a question paper?
   Ans. a. the question paper can be answered well within the stipulated time. It is neither too long nor too short.
   b. it is easy to administer – clear directions in the test.
   c. facilities are available for administering a test.
   d. scorability – for large number of students objective type questions which can be marked mechanically.

Check Your Progress - 2

1. What is the purpose of preparing a design of a question paper?
   Ans. Design takes care of the validity, reliability and usability of the test.

2. What different decisions are to be taken in order to prepare a design?
   Ans. The following decisions are to be taken:
   a. weightage to objectives
   b. weightage to content
   c. weightage to different forms of questions
   d. scheme of options
   e. scheme of options
   f. difficulty level of questions.

3. Prepare a design of a class test ............
   Ans. The teachers may prepare their own design.

Check Your Progress - 3

1. What is a blue print? Why is it necessary to prepare a blue print?
   Ans. A blue print is a three dimensional chart which shows the placing of a particular question in respect of the objective and the content area that it tests. It also indicates the marks carried by each question.
   It is useful to prepare a blue print to concretize the design in operational terms so that all the dimensions of a question become clear to the test maker.

2. What steps should a test maker follow to prepare a blue print?
   Ans. Refer to the steps of preparing a blue print.

3. Prepare a blue print ............
   Ans. The teachers may prepare their own blue prints based on the design prepared earlier.
1. What different parameters are to be followed for writing questions for a question paper?
   Ans. Refer to the section on preparing questions.

2. Prepare questions based on the blueprint that you have prepared.
   Ans. The teacher may prepare their own questions.

Check Your Progress - 5

1. What two things are involved in assembling a paper? Why is it important?
   Ans. Refer to the section on assembling the question paper.

2. Why should a paper setter prepare a marking scheme?
   Ans. The marking scheme is necessary to ensure consistency and uniformity in scoring by different examiners. It ensures scoring reliability.

3. How is question wise analysis helpful to the paper setter?
   Ans. Refer to the section on preparing question wise analysis.

4. Assemble and edit your question paper. Prepare a marking scheme and question wise analysis.
   Ans. The teachers may edit the question paper prepared by them. They prepare a marking scheme for it and its question-wise analysis.