

ACHIEVEMENT TEST

An achievement test is a test of developed skill or knowledge. The common most type of achievement test is a standardized test developed to measure skills and knowledge learned in a given grade level, usually through planned instruction such as training or classroom instruction.

Achievement tests are often contrasted with tests that measure aptitude, a more general and stable cognitive trait.

Achievement test scores are often used in an educational system to determine the level of instruction for which a student is prepared. High achievement scores usually indicate a mastery of grade-level material, and the readiness for advanced instruction. Low achievement scores can indicate the need for remediation or repeating a course grade.

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Under No child Left Behind achievement tests have taken on an additional role of assessing Proficiency of students. Proficiency is defined as the amount

of grade-appropriate knowledge and skills a student has acquired up to the point of testing. Better teaching practices are expected to increase the amount learned in a school year, and therefore to increase achievement scores, and yield more "Proficient" students than before.

When writing achievement test item, writers usually begin with a list of content standards which specify exactly what students are expected to learn in a given school year. The goal of item writers is to create test item that measures the most important skill and knowledge attained in a given grade-level. The number and type of test items are written is determined by the gradelevel content standards. Content validity is determined by the representativeness of the items included on the final test.

Scoring :

The scoring of achievement test is usually based on a predetermined scoring and where each correct responses receives a designated value, allowing for a quantitative measures of the students' knowledge or skill level in a specific subject area; this score is often compared to a norm group to interpret

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ret the student's performance relative to others. The overall test scores is then compared to a normative reference group, which consist of individuals who have already taken the test and performed at various levels.

This allows for comparison to see how well the test taken and performed creative to others.

RESULT OF ACHIEVEMENT TEST

The result of an achievement test can provide valuable information about an individual's level of knowledge, Skill or abilities in a specific subject.

It can assist educators in identifying areas of strength or weakness in students learning and guide instructional planning. In a workplace setting, achievement tests can help employer's assess job applicants qualification or determine the training needs and professional development opportunities for employees.

Therefore it is recommended to consider multiple sources of information when evaluating an individual's overall capabilities.

Uses of achievement test

* Determine proficiency and mastery

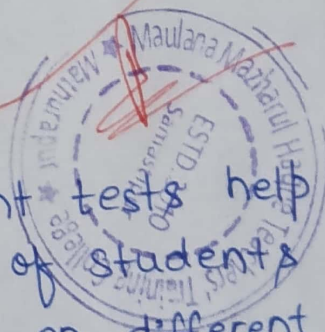
Achievement tests are designed to assess an individual's knowledge and understanding of a particular subject or topic. They provide a measure of proficiency and mastery in that area.

* Measure educational outcomes

Achievement tests are used to measure the educational outcomes of students or groups of students. They provide a standardized and objective measures of what students have learned during a specific period of instruction.

* Assess Learning Progress

Achievement tests help educators assess the progress of students over time. By comparing scores on different tests teachers can evaluate the effectiveness of their instruction methods and make necessary arrangement.



* Identifying strengths and weakness

Achievement tests provide valuable information about a student's strength and weakness in a particular subject. This enables educators to tailor instruction to individual needs and provide targeted support where necessary.

* Informed educational decisions:

Achievement test results influence important educational decisions such as placement, promotion and graduation. They provide objective data that can be used to make informed decisions about a student's academic progress and future educational plans.

* Evaluate teachers and schools:

Achievement tests are often used to evaluate the effectiveness of teachers and schools. They provide a measure of student performance which can be used to identify areas of improvement and hold educators and institutions accountable.

* Compare student Performance:

Achievement tests allow for comparison of student performance across different schools, districts and regions. This information can be used to identify achievement gaps and inform policy decisions aimed at improving educational outcomes.

* Guide Curriculum development :

Achievement tests results can guide the development and modification of curriculum by identifying areas where students are struggling or excelling. Educators can make informed decisions about what content and skills to provide in their institutions.

* Monitor educational standard :

Achievement tests play a crucial role in monitoring and maintaining educational standard. They help to ensure that students are meeting predetermined benchmarks and objectives, providing a measure of accountability for both educators and students.

* Criteria of a Good Achievement Test

* Validity : The test should accurately measure what it intends to measure. This means that the test items should be aligned with the learning objectives or content areas being assessed. If the test is designed to measure maths skills, it should include questions that specifically address maths concepts and skills.

* Reliability : The test should yield consistent results overtime and across different test takers. This means that if the same test is administered to a group of students on different occasions, their score should be relatively stable and consistent. Reliable tests ensure that the scores are not influenced by factors like guessing, random errors or external factors.

* **Objectivity**: - The test should be free from bias meaning that it should not favour or discriminate against any group of test takers based on their gender, ethnicity, socioeconomic status or any other personal characteristic. It should be fair and impartial for all test takers.

* **Adequacy of content**: - The test should have sufficient range of questions or tasks that adequately cover the topic or learning areas being assessed. It should include a representative sample of important content and skills e.g. if the test is assessing reading comprehension. It should include questions that address different types of reading passage genres or text.

* **Clear Instructions and format**: - The test should have clear and easy to understand instructions for test takers. It should provide a clear format for recording answers and should be structured in a way that is easy to navigate.

* **Qualities of Good Achievement Test** should have:

* **Authenticity**: The test should mirror real life situations or tasks that the test takers may encounter outside. The testing context Authentic tasks can increase the relevance and engagement of test takers and they can better their usual world application of knowledge and skills.

* Differentiation : → The should be able to differentiate between levels of achievement or mastery. It should have items or tasks that are appropriate challenging for both high achievers and low achievers students this can help educators identify the strength and weakness of individual students or groups and tailor instruction accordingly.

* Alignment with curriculum and standards :

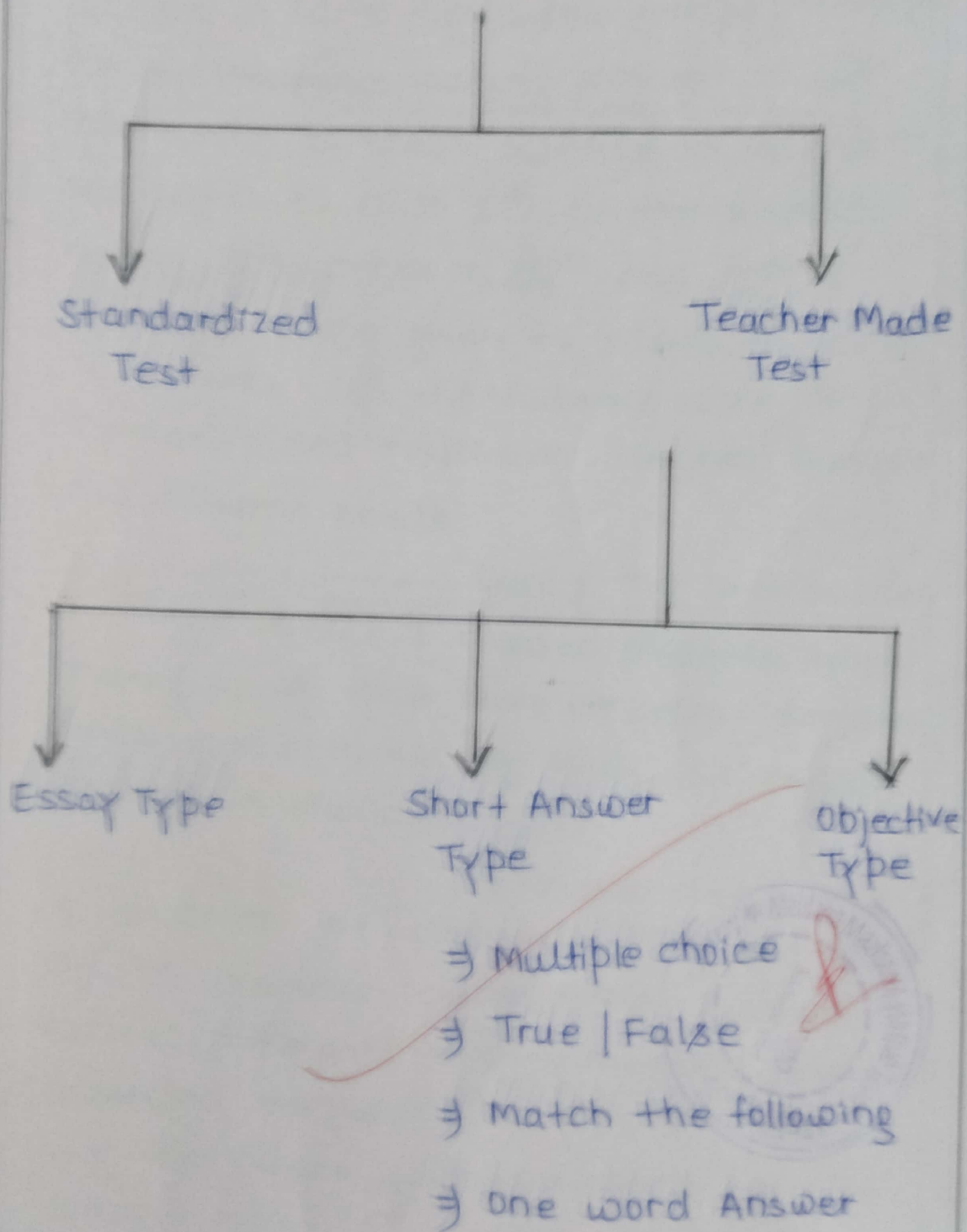
curriculum or academic standards ensures that the test assess what students are expected to learn in a particular grade or subject. Alignment with standards also provide a clear framework for evaluating students progress and informing instructional decisions.

* Diagnostic information : A good achievement test should provide detailed and meaningful feedback to both test takers and educators.

The test results should help identify specific areas of strength and weakness, allowing for targeted remediation or enrichment. Diagnostic information can guide instructional planning and support individualized learning needs.

These criteria and qualitative considerations contribute to a fair, accurate and useful assessment tool for evaluating student achievement.

Type of an Achievement Test

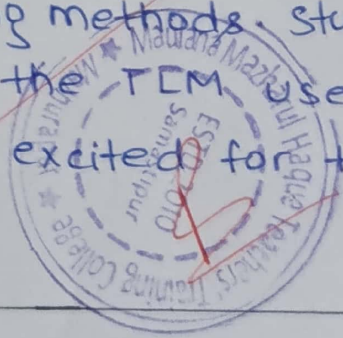


PLANNING OF ACHIEVEMENT TEST

I was in Girls' High School Kashipur, Samastipur for my internship training program. I got opportunity to teach science to class IXth and English to class Xth to the students having 8 students in IXth and Xth 8 students were given to interns to M.M.H.T. T.C. interns. All the students were very interactive and responsive, different students had different needs.

During the session when I taught science I realized students need brushing up of their basic concepts. They were comfortable with use of Hindi and English, language in the classroom.

For English class I got 8 students of class Xth. They had difficulty in grammar related topic. I used various (different) teaching methods. Students responded very well to the TCM used and they were always excited for the class.



After completion of syllabus of both the subjects I conducted the achievement test to find out the progress of the students during internship.

So I prepared achievement test for both the subjects Science and English Science for class IXth and English for class Xth. This achievement test was objective type which contain - fill up, multiple choice questions, and it was prepared according to the capabilities of the students after consulting their class teacher.



Science

Subject

Class

9th

BLUE PRINT OF ACHIEVEMENT TEST (SCIENCE)

TABLE NO 1 WEIGHTAGE TO OBJECTIVES			
S.No	OBJECTIVES	MARKS	PERCENTAGE
1.	knowledge	10	50%
2.	understanding	6	30%
3.	Application	4	20%
	TOTAL	20	100%

TABLE NO 2 WEIGHTAGE TO CONTENT			
S.No	CONTENT	MARKS	PERCENTAGE
1	SOUND	10	50%
2	SOME NATURAL PHENOMENA	10	50%
	TOTAL	20	100

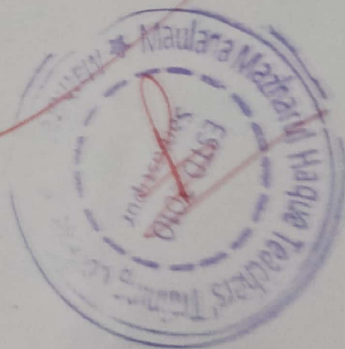
TABLE NO 3. WEIGHTAGE FORM OF QUESTIONS				
S.No.		No. of Questions	MARKS	PERCENTAGE
1	Fill in the blanks	5	5	25%
2	MCQ's	5	5	25%
3	One word Answers	5	5	25%
4	True and False	5	5	25%
	TOTAL	20	20	100%

TABLE NO: 4 WEIGHTAGE OF DIFFICULTY LEVEL

S. NO		MARKS	PERCENTAGE
1	EASY	6	30%
2	AVERAGE	12	60%
3	DIFFICULT	2	10%
	TOTAL	20	100%

FINAL BLUE PRINT (SCIENCE)

S. NO	CONTENTS	KNOWLEDGE	UNDERSTANDING		APPLICATION	TOTAL
		F/B	O/W	T/F	MCQ	
1.	SOUND	3	3	2	2	10
2.	SOME NATURAL PHENOMENA	2	2	3	3	10
SUB TOTAL		5	5	5	5	20
TOTAL		5	5	5	5	20



PAPER OF ACHIEVEMENT TEST

SUBJECT :- SCIENCE

TIME :- 30 min

GENERAL INSTRUCTION

- The question paper comprises of 4 sections A, B, C, D
- All questions are compulsory
- In section A all questions are multiple choice questions carry one marks each
- In section B all questions are based on Fill in the blanks carry one marks each.
- In section C all questions are (T & F). Carry 1 marks
- In section D all questions are short answer questions of one marks each.

SECTION - A

Multiple choice questions

1. Sound can travel through

(a) Gases only

(c) Solids only

(b) Liquids only

(d) Solid, liquid, gases

2. Voice of which of the following is likely to have minimum frequency?

(a) Baby girl

(c) Baby boy

(b) A man

(d) A woman

3. Which of the following cannot be charged by friction?

(a) A plastic scale

(c) A copper rod

(b) An inflated balloon

(d) A woollen cloth

4. What happens when glass rod is rubbed with a piece of silk cloth?

- (a) Acquire positive charge (c) Glass rod becomes +ve & silk becomes -ve
(b) Both acquire -ve charge (d) Rod becomes -ve cloth becomes +ve

5. What is electroscope used for?

Detect whether body is charged or not

To watch stars

To measure distance

To measure friction

Section - B

Fill in the blanks with suitable words

6. Time taken by an object to complete one oscillation is called _____ of

7. Soundness is determined by the _____ of vibration.

8. The unit of frequency is _____

9. Unwanted sound is called _____

10. Shrillness of sound is determined by the _____ of vibration.

Section - C Write True or False for given statements

11. Like charge attract each other. (T/F)

12. A charged rod attract a charged plastic straw (T/F)

13. Lightning conductor cannot protect a building from lightning. (T/F)

14. Earthquake can be predicted in advance. (T/F)

15. Earthquake is a natural calamity. (T/F)

Q. NO.	ANSWER KEY
1	(iv) Solid, Liquid and gases
2	(i) Baby girl
3	(iii) A copper rod
4	(ii) glass rod becomes Positive and silk cloth negative
5	(i) Detect whether body is charged or not
6	Time period
7	Amplitude
8	Hertz
9	Noise
10	Pitch
11	False
12	True
13	False
14	False
15	True
16	Move away from elevated area
17	Hide under a table
18	stretched membrane
19	stretched strings
20	cars in traffic



English

Subject

Class
9th

BLUE PRINT OF ACHIEVEMENT TEST

TABLE NO. 1 - WEIGHTAGE OF OBJECTIVES

S.No.	OBJECTIVES	MARKS	PERCENTAGE
1.	Knowledge	8	40%
2.	Understanding	8	40%
3.	Application	4	20%
	TOTAL	20	100%

TABLE NO. 2 - WEIGHTAGE TO CONTENT

S.No.	CONTENT	MARKS	PERCENTAGE
1	A different kind of school, where do all teachers go	10	50%
2.	The Banyan Tree	10	50%
	TOTAL	20	100%

TABLE NO. 3 - WEIGHTAGE TO FORM OF QUESTIONS

S.No.	FORM OF QUESTIONS	No. OF QUESTIONS	MARKS	PERCENTAGE
1.	Fill in the blanks.	5	5	25%
2.	MCQ'S	5	5	25%
3.	One word Answers	5	5	25%
4.	True & False	5	5	25%
	Total	20	20	100%

TABLE NO 4: WEIGHTAGE OF DIFFICULTY LEVEL

S. NO	FORM OF QUESTIONS	MARKS	PERCENTAGE
1.	EASY	8	30%
2.	AVERAGE	12	60%
3.	DIFFICULT	2	10%
	TOTAL	20	100%

FINAL BLUE PRINT (ENGLISH)

S.No	CONTENT	KNOWLEDGE	UNDERSTANDING		APPLICATION	Total
		F/B	O/W	T/F	MCQ	
1.	A different kind of school where do all Teachers go	3	2	3	2	10
2.	The Banyan Tree	2	3	2	3	10
SUB-TOTAL		5	5	5	5	20
TOTAL		5	5	5	5	20

F/B - Fill in the blanks

O/W - one word answers

T/F - True and False

MCQ - Multiple choice Questions

TIME - 30 MIN

ACHIEVEMENT TEST PAPER

SUBJECT

CLASS :- 9th

GENERAL INSTRUCTION

MAX MARKS :- 20

- The question paper comprises of 4 sections A, B, C, D.
- All questions are compulsory.
- In section A all questions are multiple choice carry one marks each.
- In section B all questions are Fill in the blanks carry one marks each.
- In section C all questions are one word questions carry one marks each.
- In section D all questions are T/F carry one marks each.
- Do not write anything unnecessary in the question paper.

SECTION - A

MULTIPLE CHOICE QUESTION

1. Why do you think the writer visited Mrs. Beam's school?

(a) For Admission

(c) For visit

(b) For workshop

(d) For work

2. What were the 'game' that every child in the school had to play?

(a) cricket

(c) Football

(b) disability day

(d) Soccer

1. Why do you think that animal was not a part of the story?
2. Why do you think that animal was not a part of the story?
3. Why do you think that animal was not a part of the story?
4. Why do you think that animal was not a part of the story?
5. Why do you think that animal was not a part of the story?
6. Which animal was not a part of the story?

- (A) Mongoose (B) Cobra
(C) Spectator (D) Squirrel

7. Who was the winner between the two animals in the story 'The Banyan Tree'?

- (A) Mongoose (B) Cobra
(C) Squirrel (D) Myna

Section - B

FILL IN THE BLANKS

8. This is very important part of our school system to make our children understand _____.
9. The _____ day is of course the winter _____.
10. Where do all the _____ live?
11. In the spring, we the _____ full of small red figs.
12. The _____ dropped cautiously to the ground.

SECTION - C

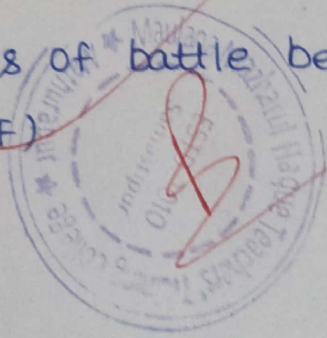
ONE WORD QUESTION

11. What was the name of school Principle?
12. What was the age of being led by a little boy?
13. At what time Teachers go from school?
14. What is the name of the poet of the poem "where do all the Teachers go?"
15. Where was Authors grand parents house located which had the Banyan Tree?

Section - D

True AND FALSE

16. Miss Bean was all the author expected (T/F)
17. Poet Plans on following the teacher after school. (T/F)
18. Poet Plans on writing a letter to the teacher after they find out where do all the teachers go (T/F)
19. Combatants were aware about the presence of Authoure on the Tree. (T/F)
20. There were three Rounds of battle between cobra and Mongoose (T/F)



Q. NO	ANSWER KEY
1.	For visit
2.	Disability day
3.	For a little
4.	spectators
5.	Mongoose
6.	Blind
7.	Blind
8.	Teachers
9.	Banyan
10.	Myna
11.	Mrs Bean
12.	12 Years
13.	'4' o'clock
14.	Peter Dixon
15.	Behren Dun
16.	True
17.	True
18.	False
19.	False
20.	True

TEST ADMINISTRATION

- Some factors are not under the control of administrator.
- How fatigued a test is taken
- Motivation level of test taken
- Physical Discomfort
- Test Anxiety

There are subject variables which can affect test result.

Different aspects of standardized Administration:

Controlling the physical Environment

- Light level
- Temperature
- Ambient Noise Level
- ventilation
- Minimal distraction

Controlling these factors helps to ensure a more reliable testing device. All must be suitable for examination.

Various Responsibilities of Administration:

Scheduling the exam of Particular concern when testing children :-

- Don't test during typical or during playground time.
- Don't schedule the test immediately.
- Don't test longer than 1 hr 30 min span for pre school and elementary school.

OTHER GUIDELINES [Inform students before the test]

- When & when test will be conducted.
- What subject material will be given.
- Type of test questions.
- Time allowance for test.

This information allows the student to prepare and reduce test taking anxiety.

General Guidelines for Administration to follow :

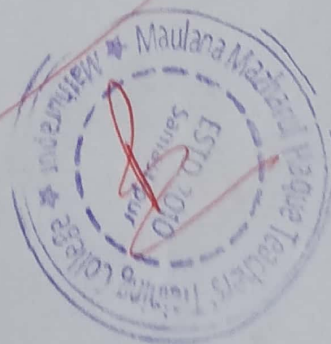
- Provide ample time for exam.
- Allow sufficient practice on sample items.
- Make arrangement for deficits in visual and/or auditory and other sensory-motor systems.
- Be aware of fatigue and test anxiety and take them account when interpreting focus.
- Use encouragement and positive reinforcement whenever possible.
- Don't force examinees to respond when they repeatedly decline to do so.
- Cheating should always be prevented.
- The test-taking environment has to be pressured against unwarranted infusion or disturbance.

Ensure all the test takers are given the proper instruction.

Scoring of Science Test

Scoring of Science Test

MERIT LIST OF STUDENTS			
SUBJECT:- SCIENCE			CLASS :- 9 th
S.No.	STUDENT NAME	MARKS	PERCENTAGE
1.	Roshni Gupta	18	90%.
2.	Lakshmi Kumari	19	95%.
3.	Nandani Kumari	15	75%.
4.	Arti Priya	16	80%.
5.	Sonal Suman	11	55%.
6.	Aditi Raj	10	50%.
7.	Bharti Kumari	11	55%.
8.	Priya Sinha	9	45%.



ITEM ANALYSIS

DIFFICULTY VALUE OF THE ITEM:-

$$\Delta V = \left(\frac{H+L}{2N} \right) \times 100$$

Accepted Range = 25% - 75%.

H = Number of response in the high Achievers.

L = Number of response in the low achievers group who gave correct answers.

N = Number of student in each group.

* Less than 25% means the item is very difficult.

* More than 75% means the item is very easy.

DISCRIMINATION INDEX

$$D.I = \frac{H-L}{2N}$$

Accepted Range = (0.2 - 0.8)

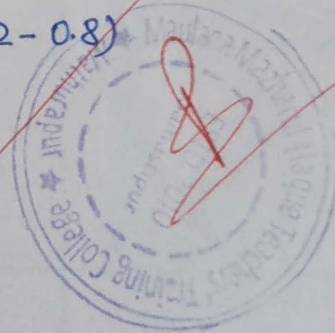


TABLE 2: SHEET WITH LOWER LIMIT (Low Achievers)

S. NO.	NAME OF STUDENT	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Score
1.	Bharti Kumari	✓	X	✓	X	✓	X	✓	✓	✓	X	✓	✓	✓	X	X	✓	✓	X	X	X	11
2.	Sonal Suman	✓	X	✓	X	X	✓	✓	X	✓	X	✓	X	X	✓	✓	✓	✓	X	X	✓	11
3.	Aditi Raj	X	X	✓	X	✓	X	X	✓	✓	X	✓	X	X	✓	✓	✓	X	✓	X	✓	10
4			✓	X	✓	X	X	✓	X	X	✓	X	✓	X	X	✓	✓	✓	✓	✓	X	9
	TOTAL	2	1	3	1	2	1	3	2	3	1	3	2	1	3	3	3	3	2	1	2	41



TABLE NO 3 MASTER SHEET (Total Students)

QUESTION NUMBERS

NAME OF STUDENTS

SNO

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Total
1	✓	X	✓	✓	✓	✓	✓	✓	✓	✓	✓	X	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	✓	✓	✓	✓	✓	X	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	✓	X	✓	✓	✓	✓	✓	✓	✓	X	✓	✓	X	✓	✓	✓	X	✓	✓	✓	X
4	✓	✓	✓	✓	✓	X	✓	✓	✓	X	✓	✓	✓	✓	X	✓	✓	✓	✓	✓	✓
5	✓	X	✓	X	✓	X	✓	✓	✓	X	✓	✓	✓	X	X	✓	✓	X	X	✓	✓
6	✓	X	✓	X	X	✓	✓	X	✓	X	✓	✓	X	X	✓	✓	✓	X	X	✓	✓
7	X	X	✓	X	✓	X	X	✓	✓	X	✓	X	X	✓	✓	✓	X	✓	X	✓	✓
8	X	✓	X	✓	X	X	✓	✓	X	✓	X	✓	X	X	✓	X	✓	✓	✓	✓	✓
	6	3	7	5	6	3	7	6	7	3	6	7	4	5	6	7	6	6	4	5	
CORRECT ITEM	75%	37%	87%	62%	75%	75%	83%	75%	87%	75%	87%	75%	50%	62%	75%	77%	75%	75%	50%	62%	
DIFFICULT VALUE	0.25	0.12	0.12	0.3	0.2	0.2	0.12	0.25	0.12	0.12	0.12	0.25	0.25	0.12	0	0.2	0	0.25	0.25	0.25	
DISCRIMINATION VALUE	0.25	0.12	0.12	0.3	0.2	0.2	0.12	0.25	0.12	0.12	0.12	0.25	0.25	0.12	0	0.2	0	0.25	0.25	0.25	
ITEM Response	Accepted	Rejected	Rejected	Accepted	Accepted	Accepted	Rejected	Accepted	Accepted	Rejected	Rejected	Accepted	Accepted	Rejected	Rejected	Rejected	Rejected	Accepted	Accepted	Accepted	

ITEM Response

Signature

Stamp: K. J. Somaiya Institute of Engineering & Technology, Vashi, Mumbai

Scoring
of

English

Test

MERIT LIST OF STUDENTS

SUBJECT : ENGLISH

S.NO	STUDENT NAME	MARKS	PERCENTAGE
1.	Roshni Gupta	16	80%.
2.	Lakshmi Kumari	10	50%.
3.	Nandani Kumari	15	75%.
4.	Arti Priya	9	45%.
5.	Sonal Suman	19	95%.
6.	Aditi Raj	9	45%.
7.	Bharti Kumari	15	75%.
8.	Priya Sinha	12	60%.

Difficulty value of Questions $\Delta V = \left(\frac{H+L}{2N} \right) \times 100$

Discrimination Power = $\frac{H-L}{N}$

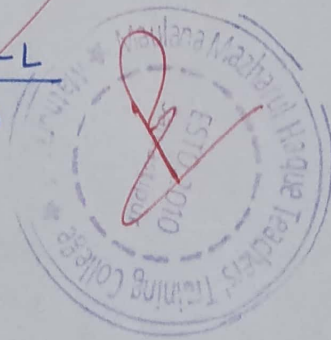


TABLE 1. sheet with upper limit (H.A.G)

S.No	NAME OF STUDENTS	Q 1	Q 2	Q 3	Q 4	Q 5	Q 6	Q 7	Q 8	Q 9	Q 10	Q 11	Q 12	Q 13	Q 14	Q 15	Q 16	Q 17	Q 18	Q 19	Q 20	TOTAL
1	SONAL SUMAN	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	X	✓	✓	✓	19
2	Rashni Gupta	✓	✓	✓	X	✓	✓	✓	✓	X	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	16
3	Nandani Kumari	✓	✓	✓	X	✓	✓	✓	✓	✓	✓	✓	X	✓	✓	✓	✓	X	✓	✓	X	15
4	Bharati Kumari	✓	X	✓	✓	✓	✓	✓	✓	X	X	✓	✓	✓	✓	X	✓	X	✓	✓	✓	15
	TOTAL	4	3	4	2	4	4	3	4	2	3	4	3	4	4	3	4	0	4	4	3	65

TABLE NO 2. SHEET WITH LOWER LIMIT (LONG ANSWER TYPE)

S.No1	Name of Students	Q 1	Q 2	Q 3	Q 4	Q 5	Q 6	Q 7	Q 8	Q 9	Q 10	Q 11	Q 12	Q 13	Q 14	Q 15	Q 16	Q 17	Q 18	Q 19	Q 20	TOTAL
1	Priya Sinha	X	X	X	✓	X	✓	✓	✓	✓	X	✓	✓	✓	X	✓	✓	X	✓	✓	X	12
2	Lakshmi kumari	✓	X	X	✓	✓	X	✓	X	X	X	✓	✓	✓	X	✓	X	✓	✓	X	X	10
3	Aditi Ray	X	✓	✓	X	X	X	✓	X	X	✓	✓	X	X	✓	X	✓	X	X	✓	X	9
4.	Arti Priya	X	X	✓	✓	X	✓	✓	X	X	✓	X	✓	X	X	X	✓	X	X	✓	✓	9
		1	1	2	3	1	3	3	2	1	2	2	3	2	1	3	3	1	2	2	1	40

Stamp: Teachers Training College, Jamshedpur, Jharkhand

Stamp: Maulana Mahesh Lal College, Jamshedpur, Jharkhand

Stamp: TOTAL 40

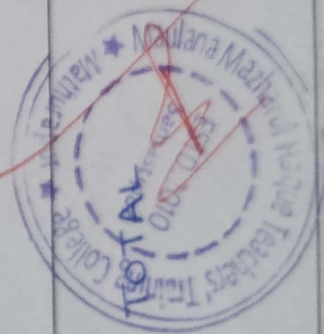
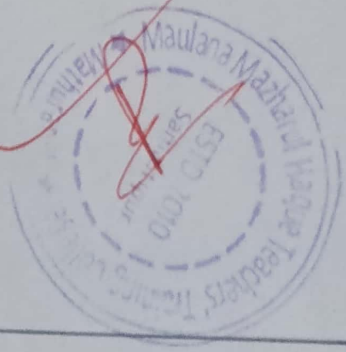


TABLE NO 3 - MASTER SHEET (TOTAL STUDENTS)

S.NO	NAME OF STUDENTS	QUESTION NUMBER																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	Roshni Gupta	✓	✓	✓	X	✓	✓	✓	✓	X	✓	✓	✓	✓	X	✓	✓	X	✓	✓	✓
2	Lakshmi Kumari	✓	X	✓	✓	✓	✓	X	✓	X	X	X	✓	✓	X	✓	X	✓	X	✓	X
3	Nandani Kumari	✓	X	✓	✓	✓	✓	✓	✓	X	✓	✓	✓	✓	✓	X	✓	X	✓	✓	✓
4	Arti Priya	X	X	✓	✓	X	✓	✓	X	X	✓	X	✓	X	X	✓	✓	X	X	✓	✓
5	Sonal suman	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
6	Aditi Ray	X	✓	✓	X	✓	✓	✓	X	✓	✓	✓	X	✓	✓	X	✓	X	✓	✓	X
7	Bharti Kumari	✓	✓	✓	X	✓	✓	✓	✓	✓	✓	✓	X	✓	✓	✓	✓	X	✓	✓	✓
8	Priya Sinha	X	X	✓	✓	X	✓	✓	✓	✓	✓	✓	✓	✓	X	✓	✓	X	✓	✓	X
	Correct Item	5	4	6	5	5	7	7	6	3	5	6	6	6	4	6	7	1	6	6	5
	Difficulty value	62.5%	50%	75%	62.5%	62.5%	87.5%	87.5%	75%	37.5%	62.5%	75%	75%	75%	50%	75%	87.5%	12.5%	75%	75%	62.5%
	Discrimination Power	0.375	0.25	0.25	0.12	0.33	0.12	0	0.25	0.12	0.25	0	0.25	0	0.12	0.15	0.25	0.12	0.25	0.25	0.25
	Item Response	Accepted	Accepted	Accepted	Rejected	Accepted	Rejected	Rejected	Accepted	Rejected	Rejected	Accepted	Rejected	Rejected	Accepted	Rejected	Rejected	Rejected	Accepted	Accepted	Accepted



STATISTICAL ANALYSIS

Introduction : [MEAN, MEDIAN, MODE]

MEAN : It is the average of the data

The total no of students in the achievement test are as follows -

$$\text{eg} - 4 + 5 + 2 + 10 + 11 + 4$$

$$\text{Mean} = \frac{\text{Sum of Responses}}{\text{Total no: of Response}} = \frac{36}{6} = 6$$

So, formula is

$$\text{Mean} = \frac{\text{Sum of Response}}{\text{Total no: of Response}}$$

$$\bar{x} = \frac{\sum x}{N}$$

Here

$$\bar{x} = \text{Mean}$$

$$\sum x = \text{Sum of Response}$$

$$N = \text{Total No: of students}$$

It is centrally located value of a series that half of the items are before it and half are behind it.

Mid value of series is called Median.

Number of Responses are even then Median is -

$$\text{Median} = \frac{\left(\frac{n}{2}\right)^{\text{th}} \text{ term} + \left(\frac{n}{2} + 1\right)^{\text{th}} \text{ term}}{2}$$

If the response are odd then median is

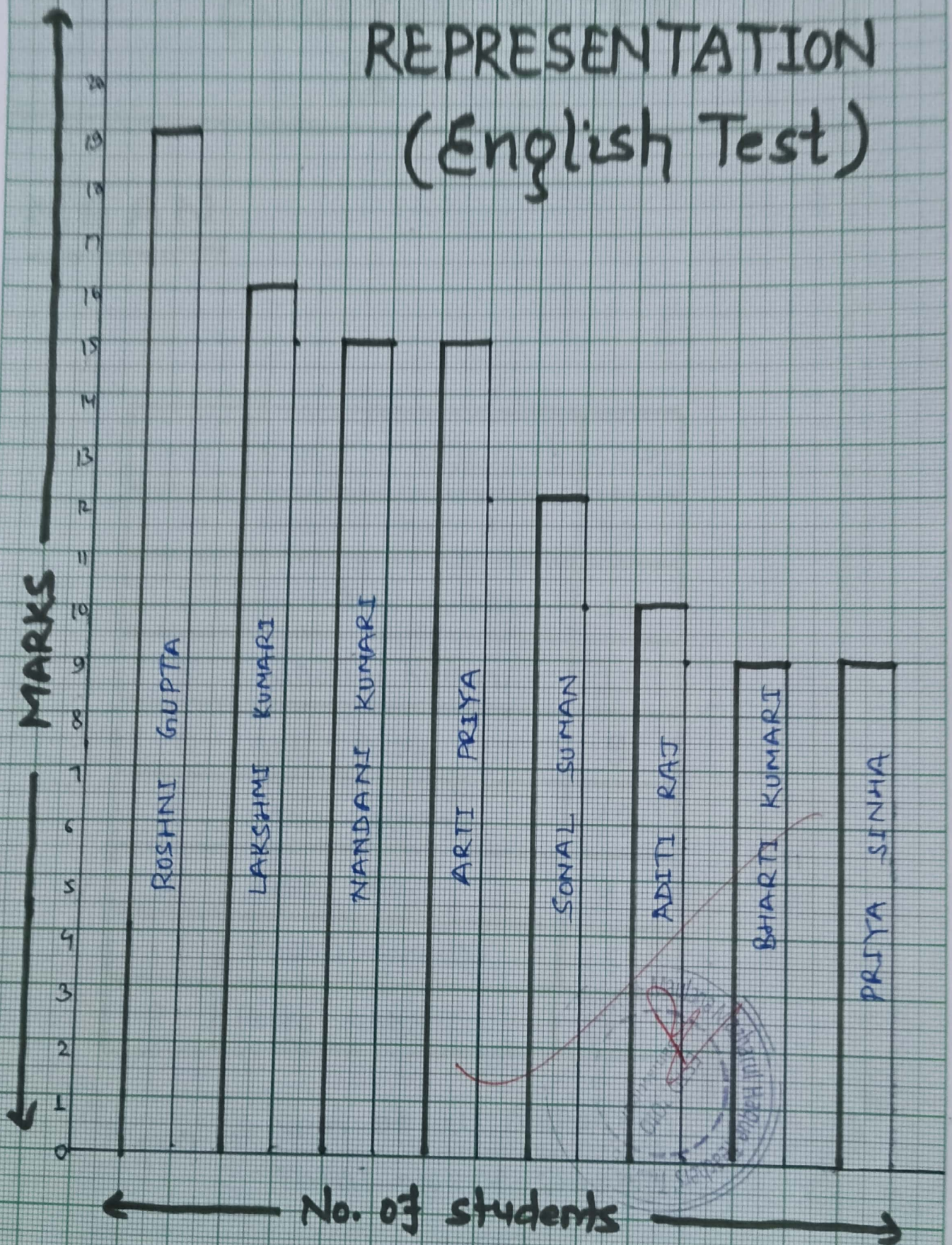
$$\text{Median} = \left(\frac{n+1}{2}\right)^{\text{th}} \text{ term}$$

MODE :-

It is the value that occurs most frequently in a data set or we can also find out by the help of mean median using this formula

$$\text{MODE} = 3 \text{ Median} - 2 \text{ Mean}$$

GRAPHICAL REPRESENTATION (English Test)



STATISTICAL ANALYSIS OF ENGLISH PAPER IXth

MEAN

SNO	NAME OF STUDENTS	SCORE
1.	Roshni Gupta	16
2.	Lakshmi Kumari	10
3	Nandani Kumari	15
4	Arti Priya	9
5	Sonal suman	19
6	Aditi Raj	9
7	Bhasti Kumari	15
8	Priya Sinha	12

$$\text{Mean} = \frac{\text{Sum of all responses}}{\text{Total No: of students}}$$

$$\text{Mean} = \frac{\sum x}{N}$$

$$\text{Mean} = \frac{16 + 10 + 15 + 9 + 19 + 9 + 15 + 12}{8}$$

$$\text{Mean} = 13.12$$

Median :-

Arrange the data in ascending order

9, 9, 10, 12, 15, 15, 16, 19

Here the no of items are 8 which is an even no

$$\text{Median} = \frac{\frac{N}{2}^{\text{th}} + \left(\frac{N}{2} + 1\right)^{\text{th}}}{2}$$

$$= \frac{4^{\text{th}} \text{ term} + 5^{\text{th}} \text{ term}}{2}$$

$$= \frac{12 + 15}{2}$$

$$\text{Median} = 13.5$$

MODE :

$$\text{MODE} = 3\text{Median} - 2\text{Mean}$$

$$= 3 \times 13.5 - 2 \times 13.12$$

$$= 40.5 - 26.4$$

$$= 40.5 - 26.4$$

$$\text{MODE} = 14.1$$

GRAPHICAL REPRESENTATION (Science Test)

