



INDIAN SCHOOL MUSCAT
SECOND PERIODIC TEST

APPLIED MATHEMATICS

CLASS: XI

Sub.Code: 241

Time Allotted: 50mts.

19.11.2023

Max .Marks: 20

Roll no..... Name of the Student..... Sec.....

GENERAL INSTRUCTIONS:

1. This Question paper contains – four sections A, B, C and D . Each section is compulsory.
2. Section A has 3 MCQ's and 01 Assertion-Reason based questions of 1 mark each.
3. Section B has 3 Very Short Answer (VSA)-type questions of 2 marks each.
4. Section C has 2 Short Answer (SA)-type questions of 3 marks each.
5. Section D has 1 source based/case based/passage based/integrated units of assessment (4 marks each)

SECTION A

1. The mean deviation from the median of the set of observations -1 , 0 and 2 is
a) 3 b) 1 c) -2 d) 2
2. For a frequency distribution of a variable x , mean = 32 , median = 30 . The distribution is
a) Positively skewed b) Negatively skewed c) Symmetric
d) Cannot be determined
3. Find the coefficient of correlation between X and Y when $\text{COV}(X , Y) = -10$,
 $V(X) = 10$ and $V(Y) = 40$.
a) 0.4 b) 0.5 c) - 0.4 d) - 0.5

4.

ASSERTION-REASON BASED QUESTIONS

In the following questions, a statement of assertion (A) is followed by a statement of Reason (R). Choose the correct answer out of the following choices.

(a) Both A and R are true and R is the correct explanation of A.

(b) Both A and R are true but R is not the correct explanation of A.

(c) A is true but R is false.

(d) A is false but R is true.

Assertion : The coefficient of correlation is the square root of the coefficient of determination .

Reason : $-1 \leq r \leq 1$, where r is the coefficient of correlation .

SECTION B

5. The table given below shows the scores of 40 students in a MCQ test:

Test Score	23	25	28	29	33	39	40	42	45	50
No. of Students	7	4	3	5	2	6	7	2	3	1

Find the percentile rank of the score 39.

6. The average of four numbers is 60. If first number is one-fourth of the sum of the last three, find the first number ?
7. For a certain frequency distribution the mean is 45 , median is 48 and Karl Pearson's coefficient of skewness is -0.4 . Calculate the standard deviation of the distribution?

SECTION C

8. The mathematical aptitude score of 10 computer programmers with their job performance is given below.

Person	A	B	C	D	E	F	G	H	I	J
Maths score	7	5	1	4	3	0	2	6	8	9
Job performance rating	8	16	8	9	5	4	3	8	17	12

Calculate Spearman's rank correlation and interpret the result ?

9. Calculate the mean deviation from the median of the following data:

Classes	0 - 6	6 - 12	12 - 18	18 - 24	24 - 30
Frequency	8	10	12	9	5

SECTION D

10. Given data is the batting performance of 2 batsmen Tejas and Jeeva in the last 9 one day matches .

Tejas	60	55	50	50	40	45	55	45	50
Jeeva	70	30	60	20	50	90	40	80	10

Answer the following questions:

- Find the mean score of batsman Tejas.
- Find the mean score of batsman Jeeva .
- Find the variance of the scores of Tejas .
- Find the variance of the scores of Jeeva.
- Who is more consistent. State the reason .

END OF THE QUESTION PAPER



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SET A

1. The first four central moments are 0 , 3 , -7 and 28 respectively . The curve of this distribution is
a) Mesokurtic b) Platykurtic c) Leptokurtic d) None of these
2. If r (correlation coefficient) is positive , the relation between X and Y of the type
a) When Y increases then X increases b) When Y decreases then X increases
c) When Y increases X does not change d) When X increases Y does not change
3. The degree of peakness or flatness of a distribution is called
a) Dispersion b) Symmetry c) Skewness d) Kurtosis

4.

ASSERTION-REASON BASED QUESTIONS

In the following questions, a statement of assertion (A) is followed by a statement of Reason (R). Choose the correct answer out of the following choices.

- (a) Both A and R are true and R is the correct explanation of A.
 (b) Both A and R are true but R is not the correct explanation of A.
 (c) A is true but R is false.
 (d) A is false but R is true.

Assertion : Mean deviation about the median for the data 5 , 2 , 4 , 9 , 7 , 6 , 8 is approximately 1.9 .

Reason : Median of a data is the value among the observations which appears maximum number of times .

SECTION B

5. The average of four numbers is 60. If first number is one-fourth of the sum of the last three, find the first number ?
6. Find the standard deviation of Y if coefficient of correlation between two variables X and Y is 0.25 , their covariance is 25 and variance of X is 16 . ?
7. The mean , mode and standard deviation of a frequency distribution are 45 , 52 and 15 respectively . Calculate the Karl Pearson's coefficient of skewness of the distribution .?Comment about the nature of skewness .?

SECTION C

8. Find the mean deviation about the median of the following data:

Marks	0-10	10-20	20-30	30-40	40-50	50-60
No. of girls	8	10	10	16	4	2

9. The mathematical aptitude score of 10 computer programmers with their job performance is given below.

Person	A	B	C	D	E	F	G	H	I	J
Maths score	7	5	1	4	3	0	2	6	8	9
Job performance rating	8	16	8	9	5	4	3	8	17	12

Calculate Spearman's rank correlation and interpret the result ?



SECTION D

- 10 A panel of two judges P and Q graded seven dramatic performances by independently awarding marks as follows:

Performance	1	2	3	4	5	6	7
Marks by P	46	42	44	40	43	41	45
Marks by Q	40	38	36	35	39	37	41

Based on the above information answer the following:

- Find the mean of the marks given by judge P .
- Find the mean of the marks given by judge Q .
- What is the standard deviation of the marks given by judge P .
- What is the standard deviation of the marks given by judge Q .

END OF THE QUESTION PAPER



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SECTION A

1. Mohan's score in a 75 item test was the median score . What is his percentile rank ?
a) 25th b) 35th c) 50th d) 75th
2. In a negatively skewed distribution
a) Mean > Mode > Median b) Median > Mode > Mean
c) Mean > Median > Mode d) Mode > Median > Mean
3. The first four central moments are 0 , 3 , -7 and 28 respectively . The curve of this distribution is
a) Mesokurtic b) Platykurtic c) Leptokurtic d) None of these

4.

ASSERTION-REASON BASED QUESTIONS

In the following questions, a statement of assertion (A) is followed by a statement of Reason ®. Choose the correct answer out of the following choices.

(a) Both A and R are true and R is the correct explanation of A.

(b) Both A and R are true but R is not the correct explanation of A.

(c) A is true but R is false.

(d) A is false but R is true.

Assertion : Mean deviation of the data 2 , 9 , 9 , 3 , 6 , 9 , 4 from the mean is 2.57 .

Reason : For individual observation $M.D (X) = \sum \frac{|x-mean|}{n}$

SECTION B

5. The score of an MCQ test of 10 students are given below .

37 , 48 , 35 , 49 , 29 , 46 , 49 , 40 , 33 , 50 . What is the percentile rank of score 49 ?

6. Find the Karl Pearson coefficient of correlation between X and Y when

$Cov(X, Y) = - 2.75$, $Var(X) = 6.25$ and $Var(Y) = 20.25$?

7. The average of four numbers is 60. If first number is one-fourth of the sum of the last three, find the first number ?

SECTION C

8. Find the mean deviation about the mean of the following data:

Marks	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No of students	2	3	8	14	8	3	2

9. The mathematical aptitude score of 10 computer programmers with their job performance is given below.

Person	A	B	C	D	E	F	G	H	I	J
Maths score	7	5	1	4	3	0	2	6	8	9
Job performance rating	8	16	8	9	5	4	3	8	17	12

Calculate Spearman's rank correlation and interpret the result ?

SECTION D

10. A panel of two judges P and Q graded seven dramatic performances by independently awarding marks as follows:

Performance	1	2	3	4	5	6	7
Marks by P	46	42	44	40	43	41	45
Marks by Q	40	38	36	35	39	37	41

Based on the above information answer the following:

- Find the mean of the marks given by judge P .
- Find the mean of the marks given by judge Q .
- What is the standard deviation of the marks given by judge P .
- What is the standard deviation of the marks given by judge Q .

END OF THE QUESTION PAPER

