Sri Raghavendra Tuition Center

MATRIX

10th Standard

Maths

Date : 15-11-24

Reg.No. : | | | | | | |

Exam Time : 01:00 Hrs

Total Marks : 40

T

EACHER NAME: P.DEEPAK M.Sc.,M.A.,B.Ed.,DCA.,TET-1.,TET-2.,

PHONE NUMBER : 9944249262

EMAIL: darthi99ktp@gmail.com

I. Multiple Choice Question 6 x 1 = 6

1) For the given matrix A = $\begin{pmatrix} 1 & 3 & 5 & 7 \\ 2 & 4 & 6 & 8 \\ 9 & 11 & 13 & 15 \end{pmatrix}$ the order of the matrix A^T is

(a) 2 x 3 (b) 3 x 2 (c) 3 x 4 (d) 4 x 3

2) If A is a 2 x 3 matrix and B is a 3 x 4 matrix, how many columns does AB have

(a) 3 (b) 4 (c) 2 (d) 5

3) Transpose of a column matrix is

(a) unit matrix (b) diagonal matrix (c) column matrix (d) row matrix

4) If number of columns and rows are not equal in a matrix then it is said to be a

(a) diagonal matrix (b) rectangular matrix (c) square matrix (d) identity matrix

5) If A = $\begin{pmatrix} 1 & 2 & 3 \\ 3 & 2 & 1 \end{pmatrix}$, B = $\begin{pmatrix} 1 & 0 \\ 2 & -1 \\ 0 & 2 \end{pmatrix}$ and C = $\begin{pmatrix} 0 & 1 \\ -2 & 5 \end{pmatrix}$, Which of the following statements are correct?

(i) AB + C = $\begin{pmatrix} 5 & 5 \\ 5 & 5 \end{pmatrix}$

(ii) BC = $\begin{pmatrix} 0 & 1 \\ 2 & -3 \\ -4 & 10 \end{pmatrix}$

(iii) BA + C = $\begin{pmatrix} 2 & 5 \\ 3 & 0 \end{pmatrix}$

(iv) (AB)C = $\begin{pmatrix} -8 & 20 \\ -8 & 13 \end{pmatrix}$

(a) (i) and (ii) only (b) (ii) and (iii) only (c) (iii) and (iv) only (d) all of these

6) Find the matrix X if $2X + \begin{pmatrix} 1 & 3 \\ 5 & 7 \end{pmatrix} = \begin{pmatrix} 5 & 7 \\ 9 & 5 \end{pmatrix}$

(a) $\begin{pmatrix} -2 & -2 \\ 2 & -1 \end{pmatrix}$ (b) $\begin{pmatrix} 2 & 2 \\ 2 & -1 \end{pmatrix}$ (c) $\begin{pmatrix} 1 & 2 \\ 2 & 2 \end{pmatrix}$ (d) $\begin{pmatrix} 2 & 1 \\ 2 & 2 \end{pmatrix}$

II. Answer any 7 Question. 7 x 2 = 14

7) If a matrix has 16 elements, what are the possible orders it can have?

8) Construct a 3 x 3 matrix whose elements are $a_{ij} = i^2j^2$

9) Find the value of a, b, c, d from the equation $\begin{pmatrix} a-b & 2a+c \\ 2a-b & 3c+d \end{pmatrix} = \begin{pmatrix} 1 & 5 \\ 0 & 2 \end{pmatrix}$

10) If A = $\begin{bmatrix} 5 & 2 & 2 \\ -\sqrt{17} & 0.7 & \frac{5}{2} \\ 8 & 3 & 1 \end{bmatrix}$ then verify $(A^T)^T = A$

11) Find the values of x, y and z from the following equations

$$\begin{bmatrix} 12 & 3 \\ x & \frac{3}{2} \end{bmatrix} = \begin{bmatrix} y & z \\ 3 & 5 \end{bmatrix}$$

12) If A = $\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$, B = $\begin{bmatrix} 1 & 7 & 0 \\ 1 & 3 & 1 \\ 2 & 4 & 0 \end{bmatrix}$, find A + B.

13) If A = $\begin{bmatrix} 1 & 3 & -2 \\ 5 & -4 & 6 \\ -3 & 2 & 9 \end{bmatrix}$, B = $\begin{bmatrix} 1 & 8 \\ 3 & 4 \\ 9 & 6 \end{bmatrix}$, find A + B.

14) Verify that A^2 = I when A = $\begin{pmatrix} 5 & -4 \\ 6 & -5 \end{pmatrix}$

15) If A = $\begin{bmatrix} 1 & 2 & 0 \\ 3 & 1 & 5 \end{bmatrix}$, B = $\begin{bmatrix} 8 & 3 & 1 \\ 2 & 4 & 1 \\ 5 & 3 & 1 \end{bmatrix}$, find AB.

16) Find the values of x, y and z from the following equations.

$$\begin{bmatrix} x+y+z \\ x+z \\ y+z \end{bmatrix} = \begin{bmatrix} 9 \\ 5 \\ 7 \end{bmatrix}$$

III. Answer all 5mark question. 4 x 5 = 20

17) Find x and y if $x\begin{bmatrix} 4 \\ -3 \end{bmatrix} + y\begin{bmatrix} -2 \\ 3 \end{bmatrix} = \begin{bmatrix} 4 \\ 6 \end{bmatrix}$

18) Solve for x, y : $\begin{bmatrix} x^2 \\ y^2 \end{bmatrix} + 2\begin{bmatrix} -2x \\ -y \end{bmatrix} = \begin{bmatrix} -5 \\ 8 \end{bmatrix}$

19) If $A = \begin{bmatrix} 5 & 2 & 9 \\ 1 & 2 & 8 \end{bmatrix}, B = \begin{bmatrix} 1 & 7 \\ 1 & 2 \\ 5 & -1 \end{bmatrix}$ verify that $(AB)^T = B^T A^T$

20) If A = $\begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$ show that $A^2 - 5A + 7I_2 = 0$

All the best

****

Sri Raghavendra Tuition Center

unit - 8 stat

10th Standard

Maths

Date : 08-11-24

Reg.No. : | | | | | | |

Exam Time : 01:30 Hrs

Total Marks : 50

T

EACHER NAME: P.DEEPAK M.Sc.,M.A.,B.Ed.,DCA.,TET-1.,TET-2.,

PHONE NUMBER : 9944249262

EMAIL: darthi99ktp@gmail.com

I. Multiple Choice Question. 10 x 1 = 10

1) Which of the following is not a measure of dispersion?

(a) Range (b) Standard deviation (c) Arithmetic mean (d) Variance

2) The range of the data 8, 8, 8, 8, 8. . . 8 is

(a) 0 (b) 1 (c) 8 (d) 3

3) The sum of all deviations of the data from its mean is

(a) Always positive (b) always negative (c) zero (d) non-zero integer

4) The standard deviation of a data is 3. If each value is multiplied by 5 then the new variance is

(a) 3 (b) 15 (c) 5 (d) 225

5) If the standard deviation of x, y, z is p then the standard deviation of 3x + 5, 3y + 5, 3z + 5 is

(a) 3p + 5 (b) 3p (c) p + 5 (d) 9p + 15

6) If the mean and coefficient of variation of a data are 4 and 87.5% then the standard deviation is

(a) 3.5 (b) 3 (c) 4.5 (d) 2.5

7) The mean of first first 10 odd natural number is _____

(a) 5 (b) 10 (c) 20 (d) 19

8) If the data is multiplied by 4, then the corresponding variances is get multiplied by _____

(a) 4 (b) 16 (c) 2 (d) None

9) Mean of squared deviations of some observations from their arithmetic mean is called_____

(a) Standard deviation (b) Variation (c) Median (d) Mode

10) The average of first 'n' natural numbers is _____

(a) $\frac{n(n+1)}{2n}$ (b) $\frac{n}{2}$ (c) $\frac{n+1}{2}$ (d) n

II. ANSWER ALL. 10 x 2 = 20

11) Find the range and coefficient of range of the following data: 25, 67, 48, 53, 18, 39, 44.

12) Find the range of the following distribution..

Age (in years)	16-18	18-20	20-22	22-24	24-26	26-28
Number of students	0	4	6	8	2	2

13) The range of a set of data is 13.67 and the largest value is 70.08. Find the smallest value.

14) Find the range and coefficient of range of the following data. 63, 89, 98, 125, 79, 108, 117, 68

15) If the range and the smallest value of a set of data are 36.8 and 13.4 respectively, then find the largest value.

16) Find the standard deviation of first 21 natural numbers.

17) If the standard deviation of a data is 4.5 and if each value of the data is decreased by 5, then find the new standard deviation.

18) If the standard deviation of a data is 3.6 and each value of the data is divided by 3, then find the new variance and new standard deviation.

19) Find the range and coefficient of range of the following data.
43.5, 13.6, 18.9, 38.4, 61.4, 29.8

20) Find the standard deviation of 30, 80, 60, 70, 20, 40, 50 using the direct method.

III. ANSWER ALL. 8 x 5 = 40

21) a) The number of televisions sold in each day of a week are 13, 8, 4, 9, 7, 12, 10. Find its standard deviation.

(OR)

b) The amount of rainfall in a particular season for 6 days are given as 17.8 cm, 19.2 cm, 16.3 cm, 12.5 cm, 12.8 cm and 11.4 cm. Find its standard deviation.

22) a) The marks scored by 10 students in a class test are 25, 29, 30, 33, 35, 37, 38, 40, 44, 48. Find the standard deviation.

(OR)

b) Find the standard deviation of the data 2, 3, 5, 7, 8. Multiply each data by 4. Find the standard deviation of the new values.

23) a) The marks scored by the students in a slip test are given below.

x	4	6	8	10	12
f	7	3	5	9	5

Find the standard deviation of their marks.

(OR)

b) Marks of the students in a particular subject of a class are given below:

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Number of students	8	12	17	14	9	7	4

Find its standard deviation.

24) a) The amount that the children have spent for purchasing some eatables in one day trip of a school are 5, 10, 15, 20, 25, 30, 35, 40. Using step deviation method, find the standard deviation of the amount they have spent.

(OR)

b) Find the standard deviation of the following data 7, 4, 8, 10, 11. Add 3 to all the values then find the standard deviation for the new values.

ALL THE BEST

****