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21MAT4G2BL

Sl. No.

M.Sc. IV Semester Degree Examination, October - 2023

MATHEMATICS

Mathematical Statistics

(NEP)

Time : 1 Hour Maximum Marks : 30

Note : *Answer the following questions.*

SECTION - A

Answer **all** the following questions, each question carries **one** mark. **5x1=5**

1. (a) State four types of classification.

(b) Define frequency.

(c) What is a Histogram ?

(d) What is an ogive ? What are its uses.

(e) Define Arithmetic mean.

SECTION - B

5x2=10

Answer **any five** of the following questions, each question carries **two** marks.

2. Represent the following data by means of percentage sub-divided bar diagrams :

Cost Per Equipment	**1998 Rs.**	**1999 Rs.**	**2000 Rs.**
Raw Materials	2,160	2,600	2,700
Labour	540	700	810
Direct Expenses	600	300	350
Factory Expenses	360	200	360
Office Expenses	180	4,000	4,490
Total	**3,840**	**4,000**	**4,490**

P.T.O.

3. Represent the following data by a suitable diagram.

Commodities	**A**	**B**
Quality sold	200 units	240 units
Price per unit	Rs. 500	Rs. 600
Cost of Raw materials per unit	Rs. 200	Rs. 300
Wages per unit	Rs. 150	Rs. 120
Others cost per unit	Rs. 100	Rs. 90
Profit per unit	Rs. 50	Rs. 90

4. Construct a Histogram for the following frequency distribution.

Variables	35-40	40-45	45-50	50-55	55-60
Frequency	12	30	22	30	28

5. Draw the two ogives from the following data and locate the median.

Class	100-200	200-300	300-400	400-500	500-600
Frequency	20	40	60	80	100

6. Determine the mode graphically from the following series and verify the results.

Weekly wages (in Rs.)	10 - 15	15 - 20	20 - 25	25 - 30	30 - 40	40 - 60	60 - 80
No. of workers	7	19	27	15	12	12	8

7. The average marks of the pre-university students is 68.4 and that of the degree students is 71.2. If the combined average of all the students is 70. Find the percentage of students in the pre-university and degree classes.

8. Find the mean of the following data.

Class Interval	50-59	40-49	30-39	20-29	10-19	0-9
Frequency	1	3	8	10	15	3

SECTION - C

Answer **any three** of the following questions, each question carries **five** marks. **3x5=15**

9. 100 students appeared for an examination. The results of those who failed were given below.

Marks :	5	10	15	20	25	30
No. of Students :	4	6	8	7	3	2

If the average marks of all the 100 students is 68.6. Find out the average marks of those who have passed.

10. The mean weight of 150 workers in a factory is 45 kgs. If the mean weight of men in the factory is 64 kgs and that of the women is 48 kgs. Find the number of men and women in the factory.

11. From the following data find out the missing frequency if the median is 50.

Class interval	10-20	20-30	30-40	40-50	50-60	60-70
Frequencies	2	8	6	-	15	10

12. From the following table calculate the Co-efficient of correlation by Karl Pearson's method. Arithmetic means of X and Y variables are 6 and 8 respectively.

X : 6 2 10 - 8

Y : 9 11 - 8 7

13. Calculate the quartile deviation and its co-efficient from the following data.

X : 58 59 60 61 62 63 64 65 66

Y : 15 20 32 35 33 22 20 10 8

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