



AN EDUCATIONAL INSTITUTE

SUBJECT: MATHS
DATE : 20/11/24

PBMT - PAPER -03
UNIT - STATISTICS & PROBABILITY
CH -13 STATISTICS CH - 14 PROBABILITY

MAX. MARKS : 30
DURATION : 60 min

General Instruction:

This Question Paper has 5 Sections A-E.

- Section A has 6 MCQs carrying 1 mark each.
- Section B has 2 questions carrying 02 marks each.
- Section C has 2 questions carrying 03 marks each.
- Section D has 1 questions carrying 04 marks each.
- Section E has 2 questions carrying 05 marks each.

Draw neat figures wherever required. Take $\pi = 22/7$ wherever required if not stated.

SECTION – A

Questions 1 to 6 carry 1 mark each.

- The mean and median of a distribution are 14 and 15 respectively .The value of mode is
(a) 16 (b) 17 (c) 13 (d) 18
- If the difference of mode and median of a data is 24 ,then the difference of median and mean is
(a) 8 (b) 12 (c) 24 (d) 36
- The distribution below gives the marks obtained by 80 students on a test :

Marks	Less than 10	Less than 20	Less than 30	Less than 40	Less than 50	Less than 60
No. of students	3	12	27	57	75	80

The modal class of this distribution is :

- (a) 10 -20 (b) 20-30 (c) 30-40 (d) 40-50
- A number is selected at random from first 50 natural numbers. Then the probability that it is a multiple of 3 and 4 is:
(a) $\frac{7}{50}$ (b) $\frac{4}{25}$ (c) $\frac{1}{25}$ (d) $\frac{2}{25}$
- 100 cards are numbered from 1 to 100. Find the probability of getting a prime number.
(a) $\frac{3}{4}$ (b) $\frac{27}{50}$ (c) $\frac{1}{4}$ (d) $\frac{29}{100}$
- If a number x is chosen from the numbers 1,2,3 and a number y is selected from the numbers 1,4,9. Then $P(xy < 9)$ is
(a) $\frac{3}{9}$ (b) $\frac{4}{9}$ (c) $\frac{1}{9}$ (d) $\frac{5}{9}$

SECTION – B

Questions 7 to 8 carry 2 mark each.

- Find the values of frequencies x and y in the following frequency distribution table ,if N = 100 and median is 32 .

Marks	0-10	10-20	20-30	30-40	40-50	50-60	Total
No. of students	10	x	25	30	y	10	100

8. Find the missing frequency 'x' of the following data .If its mode is 240 :

Daily household expenditure (in Rs)	0-100	100-200	200-300	300-400	400-500
Number of families	140	230	270	x	150

SECTION – C
Questions 9 to 10 carry 3 mark each.

9. The median of the following data is 16.Find the missing frequencies a and b ,if the total of the frequencies is 70 .

Class	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40
Frequency	12	a	12	15	b	6	6	4

10. Two different dice are tossed together. Find the probability

- (a) that the number on each die is even.
 - (b) that the sum of numbers appearing on the two dice is 5
- or

A bag contains 12 balls, out of which x are white.

- (a) If one ball is drawn at random, find the probability that it is a white ball.
- (b) If 6 more white balls are put in the bag, the probability of drawing a white ball is double than that in
- (c) Find x

SECTION – D
Questions 11 carry 4 mark each.

11. Electricity energy consumption is the form of energy consumption that uses electric energy .Global electricity consumption continues to increase faster than world population , leading to an increase in the average amount of electricity consumed per person (per capita electricity consumption).

Tariff	: LT – Residential	Bill number	: 384756
Type of supply	: single phase	Connected load	: 3 KW
Meter reading date	: 31 – 11 - 13	Meter reading	: 65789
Previous reading date	: 31 – 10 - 13	Previous meter reading	: 65500
		Units consumed	: 289

A survey conducted for 56 families of a colony .The following table gives the weekly consumption of electricity of these families .

Weekly consumption (in units)	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60
No. of families	16	12	18	6	4	0

Based on the above answer the following questions :

Refer to data received from colony

(i) What is the median of weekly consumption ?

(ii) What is the mean of weekly consumption ?

SECTION – E
Questions 12 to 13 carry 5 mark each

12. Red queens and blackjacks are removed from a pack of 52 playing cards. A card is drawn at random from the remaining cards, after reshuffling them. Find the probability that the drawn card is

- (a) a king. (b) of red colour.
(c) a face card. (d) a queen.

13. Two dice, one blue and one grey, are thrown at the same time. Write down all the possible outcomes. What is the probability that the sum of the two numbers appearing on the top of the die

- (a) 8? (b) 13?
(c) Less than or equal to 12?

End

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