

EDUCATION DEPARTMENT, VILLUPURAM DISTRICT.

Class : X

UNIT TEST

Marks: 50

Subject: Mathematics

UNIT 8 - Statistics and Probability

Time: 1½ hrs.

I Choose the correct answer.

7×1=7

1. The sum of all deviations of the data from its mean is
 A) Always positive B) always negative C) zero D) non-zero integer
2. The mean of 100 observations is 40 and their standard deviation is 3. The sum of squares of all deviations is
 A) 40000 B) 160900 C) 160000 D) 30000
3. 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
4. Which of the following is incorrect?
 A) $P(A) > 1$ B) $0 \leq P(A) \leq 1$ C) $P(\phi) = 0$ D) $P(A) + P(\bar{A}) = 1$
5. A page is selected at random from a book. The probability that the digit at units place of the page number chosen is less than 7 is
 A) $\frac{3}{10}$ B) $\frac{7}{10}$ C) $\frac{3}{9}$ D) $\frac{7}{9}$
6. The probability of getting a job for a person is $\frac{x}{3}$. If the probability of not getting the job is $\frac{2}{3}$ then the value of x is
 A) 2 B) 1 C) 3 D) 1.5
7. If a letter is chosen at random from the English alphabets {a, b, ..., z}, then the probability that the letter chosen precedes x
 A) $\frac{12}{13}$ B) $\frac{1}{13}$ C) $\frac{23}{26}$ D) $\frac{3}{26}$

II Answer the following questions. (any 5)

5×2=10

1. Find the range and coefficient of range of the following data: 25, 67, 48, 53, 18, 39, 44.
2. If the range and the smallest value of a set of data are 36.8 and 13.4 respectively, then find the largest value.
3. If the mean and coefficient of variation of a data are 15 and 48 respectively, then find the value of standard deviation.
4. A bag contains 5 blue balls and 4 green balls. A ball is drawn at random from the bag. Find the probability that the ball drawn is (i) blue (ii) not blue.
5. Two coins are tossed together. What is the probability of getting different faces on the coins?
6. What is the probability of drawing either a king or a queen in a single draw from a well shuffled pack of 52 cards?
7. If $P(A) = 0.37$, $P(B) = 0.42$, $P(A \cap B) = 0.09$ then find $P(A \cup B)$.

III Answer the following questions. (any 5)

5×5=25

1. 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.
2. Find the coefficient of variation of 24, 26, 33, 37, 29, 31.
3. Two dice are rolled. Find the probability that the sum of outcomes is
(i) equal to 4 (ii) greater than 10 (iii) less than 13
4. Three fair coins are tossed together. Find the probability of getting
(i) all heads (ii) atleast one tail (iii) atleast one head (iv) atleast two tails
5. A card is drawn from a pack of 52 cards. Find the probability of getting a king or a heart or a red card.
6. In a class of 50 students, 28 opted for NCC, 30 opted for NSS and 18 opted both NCC and NSS. One of the students is selected at random. Find the probability that
(i) The student opted for NCC but not NSS.
(ii) The student opted for NSS but not NCC.
(iii) The student opted for exactly one of them.
7. A bag contains 12 blue balls and x red balls. If one ball is drawn at random (i) what is the probability that it will be a red ball? (ii) If 8 more red balls are put in the bag, and if the probability of drawing a red ball will be twice that of the probability in (i), then find x .

IV Answer the following question.

1×8=8

1. a) Construct a triangle similar to a given triangle PQR with its sides equal to $\frac{3}{5}$ of the corresponding sides of the triangle PQR (scale factor $\frac{3}{5} < 1$)
(OR)
b) Draw a triangle ABC of base BC = 8 cm, $\angle A = 60^\circ$ and the bisector of $\angle A$ meets BC at D such that BD = 6 cm.
