STATISTICS AND PROBABILITY
UNIT TEST

CLASS: 10   **MARKS:50**
SUB: MATHS   **TIME: 1.30 Hrs.**

I. Choose the correct answer: **7 x 1 = 7**

1. The range of the data 8,8,8,8..,8 is
    (A) 0   (B) 1   (C) 8   (D) 3

2. Variance of first 20 natural numbers is
    (A) 32,25   (B) 44.25   (C) 33.25   (D) 30

3. 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

4. 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

5. Which of the following is incorrect?
    (A) $P(A) > 1$ (B) $0 \leq P(A) \leq 1$ (C) $P(\emptyset) = 0$ (D) $P(A) + P(\overline{A}) = 1$

6. 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) $\frac{7}{9}$.

7. 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

II. Answer any FIVE questions: (Q.No.14 is compulsory)   **5 x 2 = 10**

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

9. Find the standard deviation of first 21 natural numbers.

10. The standard deviation and coefficient of variation of data are 1.2 and 25.6 respectively. Find the value of mean.

11. Express the sample space for rolling two dice using tree diagram.

12. In a box there are 20 non-defective and some defective bulbs. If the probability that a bulb selected at random from the box found to be defective is 3/8 then, find the number of defective bulbs.

13. If A is an event of a random experiment such that $P(A) = P(\overline{A}) = 17{:}15$ and $n(S)=640$ then find $P(\overline{A})$

14. If A and B are two mutually exclusive events of a random experiment and P(not A) = 0.45. $P(A \cup B)=0.65$, then find P(B).

III. Answer any FIVE questions: (Q.No.21 is compulsory)   **5 x 5 = 25**

15. 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.

16. The marks scored by the students in a slip test are given below. Find the standard deviation of their marks.

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

17. The mean and standard deviation of marks obtained by 40 students of a class in three subjects Mathematics, Science and Social Science are given below. Which of 3 subjects shows more consistent and which shows less consistent in marks?

Subject	Mean	SD
Mathematics	56	12
Science	65	14
Social science	60	10

18. Three fair coins are tossed together. Find the probability of getting
   (i) all heads (ii) atleast one tail   (iii) almost one head (iv) atmost two tails

19. A card is drawn from a pack of 52 cards. Find the probability of getting a king or a heart or a red card.

20. If A and B are two events such that, P(A)=0.42, P(B)=0.48 and P(A∩B) = 0.16, then find (i) P(not A) (ii) P(not B)   (iii) P(A or B).

21. Two dice are rolled once. Find the probability of getting an even number on the first die or a total of face sum 8.

IV. Answer all the question: **1 x 8 = 8**

22. Construct a triangle to a given triangle PQR with its sides equal to $\frac{6}{5}$ of the triangle PQR

(scale factor $\frac{6}{5} > 1$)   **(OR)**

Draw the graph of xy = 24, x,y>0. Using the graph find, (i) y when x=3 (ii) x when y=6.