

Sylhet Cadet College
Pre-Test Examination - 2022
Class: XII
Set - D

Subject: Statistics First Paper (MCQ)
Subject Code: 130

Time: 25 minutes

Full Marks: 25

Answer all the questions. Each question is worth one (1) mark.

1. If a neutral die is thrown, the probability of having a digit greater than 6 is

(a) $\frac{1}{6}$ (b) $\frac{0}{6}$ (c) $\frac{2}{3}$ (d) $\frac{3}{6}$

2. Tossing a coin twice generates how many outcomes?

(a) 4 (b) 16 (c) 8 (d) 2

3. The probability of two disjoint sets happening together is:

(a) 0.5 (b) 0 (c) 1 (d) $0 \leq x < 1$

Answer the next three question using the following information

$$P(A) = \frac{1}{3}, P(B) = \frac{1}{2} \& P(A \cup B) = \frac{1}{4}$$

4. $P(A \cap B) = ?$

(a) $\frac{5}{12}$ (b) $\frac{1}{2}$ (c) $\frac{7}{12}$ (d) $\frac{15}{16}$

5. $P(A \cap \bar{B}) = ?$

(a) $\frac{3}{4}$ (b) $\frac{5}{6}$ (c) $\frac{1}{4}$ (d) $\frac{1}{12}$

6. What is the probability that B occurs or A does not occur?

(a) $\frac{3}{4}$ (b) $\frac{7}{12}$ (c) $\frac{5}{12}$ (d) $\frac{1}{3}$

7. An un contains 10 red and 5 black balls. Two balls are drawn; what is the probability of getting two red balls?

(a) $\frac{3}{7}$ (b) $\frac{4}{7}$ (c) $\frac{20}{21}$ (d) $\frac{2}{21}$

8. How many types of random variables are there?

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

9. If $f(x) = 2x; 0 < x < 3, F(3) = ?$

(a) 3 (b) 0 (c) 1 (d) 2.5

10. Which one is a discrete random variable?

(a) Height (b) Weight
(c) Diameter (d) Released version number of a software

11. Which one is a property of joint probability distribution?

(a) $P(X_i, Y_j) < 1$ (b) $P(X_i, Y_j) = 0$ (c) $P(X_i, Y_j) < 0$ (d) $0 \leq P(X_i, Y_j) \leq 1$

Answer the next three questions based on the following information.

A card is drawn from a pack of playing cards.

12. What is the probability that the card is a King?

(a) 0.0192 (b) 0.25 (c) 0.5 (d) 0.0769

13. **P(The card is not from Diamonds)–**
 (a) $\frac{1}{2}$ (b) 0 (c) $\frac{3}{4}$ (d) $\frac{1}{4}$
14. **P(The card is red or Clubs)**
 (a) $\frac{1}{4}$ (b) $\frac{1}{2}$ (c) $\frac{2}{3}$ (d) $\frac{3}{4}$
15. **If $f(x) = kx^3; -1 \leq x \leq 1$, then k is**
 i) positive
 ii) negative
 iii) lies from -1 to 1
 (a) i (b) ii (c) iii (d) i and ii
16. **The minimum value of probability is**
 (a) $-\alpha$ (b) 1 (c) 0 (d) -1
17. **Each element of sample space is called–**
 (a) Trial (b) Experiment (c) Variable (d) Sample Point
18. **Two events not occurring together are called–**
 (a) dependent Events (b) Independent Events
 (c) Mutually Exclusive Events (d) Marginal Events
19. **If A and B are independent, which formula is correct?**
 (a) $P(A \cap B) = P(A) \cdot P(B)$ (b) $P(A \cap B) = P(\bar{A}) \cdot P(B)$
 (c) $P(A \cap B) = P(A) \cdot P(\bar{B})$ (d) $P(A \cap \bar{B}) = P(A) \cdot P(B)$

Answer the next two questions based on the following information.

x	4	5	6	3	2	1
P(X)	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$

20. **The value of $P(3 < X < 5)$ is:**
 (a) $\frac{1}{2}$ (b) $\frac{1}{6}$ (c) $\frac{1}{3}$ (d) 0
21. **$P(x \neq 2)$ is :**
 (a) $\frac{5}{6}$ (b) 0
 (c) 1 (d) Can't be found from this information
22. **Which of the following is not a discrete random variable?**
 (a) Number of students (b) Weight
 (c) Number of heads in coin toss (d) Population
23. **Which one is a property of a probability distribution?**
 (a) $P(x_i) = 0$ (b) $P(x_i \neq 1)$ (c) $\sum P(x_i) = 1$ (d) $\int_x P(X)dx \leq 1$
- Answer the next two questions based on the following information:**
 $P(x, y) = \frac{1}{21}(x + y); x = 1, 2, 3$ and $y = 1, 2$
24. **P(x)=?**
 (a) $P(x) = \frac{2x+3}{21}$ (b) $P(x) = \frac{x+3}{27}$ (c) $P(x) = \frac{4x+3}{21}$ (d) $P(x) = \frac{2x+5}{21}$
25. **P(y)=?**
 (a) $\frac{y+2}{7}$ (b) $\frac{y+3}{7}$ (c) $\frac{3y+2}{7}$ (d) $\frac{y+2}{9}$