Statistics MCQ Question Bank

Second Paper

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1 Introduction to Probability

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 events?**

   (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) $\frac{2}{21}$

2 Random Variables

8. **How many types of random variables are there?**

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

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

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

10. **Which one is not a discrete random variable?**

    (a) Number of studnets (b) Weight

    (c) Number of heads in five coin tosses (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) $0 \leq P(X_i, Y_j) \leq 1$

12. **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

    Answer the next two questions based on the following information.

13. **The value of** $P(3 < X < 5)$ **is:**

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

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

14. $P(x \neq 2) is:$

(a) $\frac{5}{6}$ (b) 0

(c) 1 (d) Can't be found from this information

3 Mathematical Expectation

15. **Expectation measures –**

(a) Dispersion (b) Skewness (c) Kurtosis (d) Central tendency

16. **If $E(X) = -0.5$, then $E(1 - 2X) =$?**

(a) 0 (b) -1 (c) 2 (d) 1

17. **If $P(X) = \frac{1}{10}; x = 1, 2, \cdots 10$, then $E(X) =$?**

(a) 10 (b) 5.5 (c) 0 (d) 11

18. **Which formula of variance is correct?**

(a) $V(X + Y) = V(X) + V(Y) - 2Cov(X, Y)$ (b) $V(X + Y) = V(X) + V(Y) + 2Cov(X, Y)$

(c) $V(X + Y) = V(X) + V(Y) - 2Cov(X, Y)$ (d) $V(X + Y) = V(X) - V(Y) + 2Cov(X, Y)$

19. **X is a constant; what is the value of $V(\frac{x}{2})$?**

i) 0
ii) $\frac{1}{2}$
iii) $\frac{1}{4}$

(a) ii (b) i (c) iii (d) i and iii

4 Binomial Distribution

Answer the next two questions based on the following information.

X is a binomial variate with expectation 4 and standard deviation $\sqrt{3}$.

20. **What are the values of the parameters (mean and probability)?**

(a) 16, $\frac{1}{4}$ (b) 16, $\frac{3}{4}$ (c) 15, $\frac{1}{4}$ (d) 10, $\frac{1}{4}$

21. **What is $P(X \neq 0)$?**

(a) 0 (b) 0.01 (c) 0.99 (d) 1

5 Poisson Distribution

22. **X is a Poisson variate. P(2) = P(4). What is the value of the parameter?**

(a) 12 (b) 3.46 (c) 3.6 (d) 4

23. **Mean of a Poisson variate is a. What is its standard deviation?**

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

6 Vital Statistics

24. **Crude Birth Rate (CBR) is:**

(a) $\frac{B}{P} \times 100$ (b) $\frac{B}{P} \times 1000$ (c) $\frac{P}{B} \times 100$ (d) $\frac{F}{P} \times 100$

25. **Which one is a measure of reproduction?**

i) CBR
ii) CDR
iii) NRR

(a) i (b) ii (c) iii (d) i and ii

Answer Key:

1. (b) $\frac{0}{6}$
2. (a) 4
3. (b) 0
4. (c) $\frac{7}{12}$
5. (d) $\frac{1}{12}$
6. (a) $\frac{3}{4}$
7. (a) $\frac{3}{7}$
8. (a) 2
9. (c) 1
10. (b) Weight
11. (d) $0 \leq P(X_i, Y_j) \leq 1$
12. (a) i
13. (b) $\frac{1}{6}$
14. (a) $\frac{5}{6}$
15. (d) Central tendency
16. (c) 2
17. (b) 5.5
18. (b) $V(X+Y) = V(X) + V(Y) + 2C(X,Y)$
19. (b) i
20. (a) 16, $\frac{1}{4}$
21. (c) 0.99
22. (b) 3.46
23. (c) $a^{\frac{1}{2}}$
24. (b) $\frac{B}{P} \times 1000$
25. (a) $C(X, Y)$