SYLHET CADET COLLEGE

FIRST TERM-END EXAMINATION - 2024 | Set :A

CLASS: XII

MULTIPLE CHOICE QUESTIONS **Subject Code:** 1 3 0

STATISTICS FIRST PAPER

TIME – 25 minutes

FULL MARKS – 25

[N.B. – Answer all the questions. Each question carries ONE mark. Block fully, with a black ball- point pen, the circle of the letter that stands for the correct/best answer in the "Answer sheet" for the Multiple Choice Questions Examination.]

Candidates are asked not to leave any mark or spot on the question paper.

1. **The third axiom of probability is –**

   (a) $0 \leq P(A) \leq 1$ (b) $P(S) = 1$

   (c) $P(A_1 U A_2 U \cdots U A_n) = \sum_{i=1}^{\infty} P(A_i)$ (d) $P(A) = 1 - P(A)$

2. **In how many ways can a team of 2 be formed from 4 people?**

   (a) 4 (b) 6 (c) 8 (d) 12

   Answer the next three questions based on the following information.

   A card is drawn from of pack of playing cards.

3. **What is the probability that the card is a King?**

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

4. **P(The card is not from Diamonds)–**

   (a) $\frac{1}{2}$ (b) 0 (c) $\frac{3}{4}$ (d) $\frac{1}{4}$

5. **P(The card is red or Clubs)**

   (a) $\frac{1}{4}$ (b) $\frac{1}{2}$ (c) $\frac{2}{3}$ (d) $\frac{3}{4}$

6. $f(x) = 2x; 0 < X < 3$**; What is F(3)?**

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

   Answer the next two questions using the following information

x	1	2	3	4	5	6
P(x)	k	2k	3k	4k	5k	6k

7. **What is the value of k?**

   (a) $\frac{7}{21}$ (b) $\frac{5}{21}$ (c) $\frac{1}{21}$ (d) 1

8. **What is the type of variable X?**

   (a) Discrete (b) Discrete random (c) Continuous (d) Continuous random

9. **The example of a discrete random variable is–**

   i. Binomial variate

   ii. Poisson variate

   iii. Normal variate

   Which one is correct?

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

10. **What is the expected value of of the squared deviation of the value of the random variable from their mean?**

    (a) Arithmetic Mean (b) Expectation (c) Variance (d) Co-variance

11. **What is the minimum value of variance a random variable?**

    (a) $-\infty$ (b) 1 (c) 0 (d) -1

12. **If** $y = ax + b$**, what is the value of** $V(y)$?

    (a) $aV(X)$ (b) $a^2V(X)$ (c) $V(X)$ (d) a^2

13. **How many parameters are there in a binomial distribution?**

    (a) 1 (b) 2 (c) 3 (d) 4

14. **What is the Standard Deviation of Binomial Distribution?**
    (a) np (b) npq (c) nq (d) $\sqrt{npq}$

15. **In a Binomial distribution, how are mean and variance related?**
    (a) $Mean > Variance$ (b) $Mean < Variance$ (c) $Mean = Variance$ (d) $Mean = 2 \times Variance$

    Answer the next two questions based on the following information.
    X is a binomial variate with expectation 4 and standard deviation $\sqrt{3}$.

16. **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, $\frac{1}{4}$

17. **What is** $P(X \neq 0)$?
    (a) 0 (b) 0.01 (c) 0.99 (d) 1

18. **Which relationship between mean and variance of Poisson Distribution is correct?**
    (a) $Mean > Variance$ (b) $Mean < Variance$ (c) $Mean = Variance$ (d) $Mean \neq Variance$

19. **Which one is true of the parameter (m) of Poisson Distribution?**
    (a) $m = 0$ (b) $m < 0$ (c) $m > 0$ (d) $m = 1$

20. **The parameter of a Poisson Distribution is 5. What is its mean?**
    (a) 2 (b) 5 (c) 2.24 (d) 25

21. **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

22. **What is the called the ratio of the dependent population to the earning population?**
    (a) Dependency ratio (b) Sex ration (c) Population density (d) Growth rate

23. **What is the formula of population density?**
    (a) $\frac{M}{F} \times 100$ (b) $\frac{F}{M} \times 100$ (c) $\frac{B}{P} \times 100$ (d) $\frac{P}{A}$

24. **In the following data, what is the dependency ratio?**

Age	0-14	15-24	25-34	35-44	45-54	55-64	65+
Populatation	31,500	40,000	48,000	41,000	32,000	25,000	16,000

    (a) 35.54% (b) 25.54% (c) 23.24% (d) 31.25%

25. **Crude Birth Rate (CBR) is:**
    (a) $\frac{B}{P} \times 100$ (b) $\frac{B}{P} \times 1000$ (c) $\frac{P}{B} \times 100$ (d) $\frac{F}{P} \times 100$

"Without data, you're just another person with an opinion." - William Edwards Deming

Answer Key

1. (c) $P(A_1 U A_2 U \cdots U A_n) = \sum_{i=1}^{\infty} P(A_i)$
2. (b) 6
3. (d) 0.0769
4. (c) $\frac{3}{4}$
5. (d) $\frac{3}{4}$
6. (c) 1
7. (c) $\frac{1}{21}$
8. (b) Discrete random
9. (a) i and ii
10. (c) Variance
11. (c) 0
12. (b) $a^2V(X)$
13. (b) 2
14. (d) $\sqrt{npq}$
15. (a) $Mean > Variance$
16. (a) 16, $\frac{1}{4}$
17. (c) 0.99
18. (c) $Mean = Variance$
19. (c) $m > 0$
20. (b) 5
21. (b) 3.46
22. (a) Dependency ratio
23. (d) $\frac{P}{A}$
24. (b) 25.54%
25. (b) $\frac{B}{P} \times 1000$