

SYLHET CADET COLLEGE

TEST EXAMINATION - 2024

CLASS: XII

MULTIPLE CHOICE QUESTIONS

STATISTICS SECOND PAPER

TIME – 25 minutes

FULL MARKS – 25

Set	:A
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Subject Code:	1	3	0
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[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) $P(A_1 \cup A_2 \cup \dots \cup A_n) = \sum_{i=1}^{\infty} P(A_i)$
- (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+
Populataion	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) $P(A_1UA_2U\cdots UA_n) = \sum_{i=1}^{\infty} P(A_i)$

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) $\frac{B}{P} \times 1000$