SYLHET CADET COLLEGE

FIRST TERM-END EXAMINATION - 2024

CLASS: XII

MULTIPLE CHOICE QUESTIONS

STATISTICS FIRST PAPER

 $\begin{array}{l} TIME-25 \ minutes \\ FULL \ MARKS-25 \end{array}$

		Set	:A
Subject Code:	1	3	0

[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.

(a) $0 \le P(A) \le 1$		(1) $D(C)$ 1	
		(b) $P(S) = 1$	
(c) $P(A_1UA_2U\cdots UA_n)$	$=\sum_{i=1}^{\infty}P(A_i)$	(d) $P(A) = 1 - P(A)$	
In how many ways car	n a team of 2 be formed	l from 4 people?	
(a) 4	(b) 6	(c) 8	(d) 12
Answer the next three	e questions based on the	e following information	
A card is drawn from of p	back of playing cards.		
What is the probabilit	y that the card is a Ki	ng?	
(a) 0.0192	(b) 0.25	(c) 0.5	(d) 0.0769
P(The card is not from	n Diamonds)–		
(a) $\frac{1}{2}$	(b) 0	(c) $\frac{3}{4}$	(d) $\frac{1}{4}$
P(The card is red or 0	Clubs)		
(a) $\frac{1}{4}$	(b) $\frac{1}{2}$	(c) $\frac{2}{3}$	(d) $\frac{3}{4}$
f(x) = 2x; 0 < X < 3; W	That is $F(3)$?		
(a) 3	(b) 0	(c) 1	(d) 0
Answer the next two	questions using the follo	owing information	
	$\begin{array}{c ccc} x & 1 & 2 \\ \hline P(x) & k & 2k \end{array}$	3 4 5 6 3k 4k 5k 6k	
What is the value of k	?		
		(c) $\frac{1}{21}$	(d) 1
	21	(/ 21	()
		(c) Continuous	(d) Continuous random
` '	•	` '	
i. Binomial variate ii. Poisson variate	rete random variable is		
(a) i and ii	(b) i and iii	(c) ii and iii	(d) i, ii and iii
What is the expected value of of the squared deviation of the value of the random variable their mean?			
(a) Arithmetic Mean	(b) Expectation	(c) Variance	(d) Co-variance
What is the minimum	value of variance a ran	dom variable?	
(a) $-\infty$	(b) 1	(c) 0	(d) -1
If $y = ax + b$, what is the	he value of $V(y)$?		
(a) $aV(X)$	(b) $a^2V(X)$	(c) $V(X)$	(d) a^2
How many parameters	s are there in a binomia	al distribution?	
(a) 1	(b) 2	(c) 3	(d) 4
	Answer the next three A card is drawn from of p. What is the probability (a) 0.0192 P(The card is not from (a) $\frac{1}{2}$ P(The card is red or (a) $\frac{1}{4}$ $f(x) = 2x; 0 < X < 3;$ W(a) 3 Answer the next two of the example of a disc (a) Discrete The example of a disc (b) Discrete The example of a disc (c) Discrete The example of a disc (c) Discrete The ii. Poisson variate (c) Discrete The and ii. What is the expected their mean? (a) Arithmetic Mean What is the minimum (a) $-\infty$ If $y = ax + b$, what is the (a) $aV(X)$ How many parameters	(a) 4 (b) 6 Answer the next three questions based on the A card is drawn from of pack of playing cards. What is the probability that the card is a Kin (a) 0.0192 (b) 0.25 P(The card is not from Diamonds)— (a) $\frac{1}{2}$ (b) 0 P(The card is red or Clubs) (a) $\frac{1}{4}$ (b) $\frac{1}{2}$ $f(x) = 2x; 0 < X < 3;$ What is $F(3)$? (a) 3 (b) 0 Answer the next two questions using the followable of 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 What is the expected value of of the squared their mean? (a) Arithmetic Mean (b) Expectation What is the minimum value of variance a rand (a) $-\infty$ (b) 1 If $y = ax + b$, what is the value of $V(y)$? (a) $aV(X)$ (b) $a^2V(X)$ How many parameters are there in a binomial	Answer the next three questions based on the following information A card is drawn from of pack of playing cards. What is the probability that the card is a King? (a) 0.0192 (b) 0.25 (c) 0.5 P(The card is not from Diamonds)— (a) $\frac{1}{2}$ (b) 0 (c) $\frac{3}{4}$ P(The card is red or Clubs) (a) $\frac{1}{4}$ (b) $\frac{1}{2}$ (c) $\frac{2}{3}$ $f(x) = 2x; 0 < X < 3$; What is $F(3)$? (a) 3 (b) 0 (c) 1 Answer the next two questions using the following information $\frac{x}{P(x)} = \frac{1}{2} = \frac{2}{3} = \frac{3}{4} = \frac{4}{5} = \frac{5}{6}$ What is the value of k? (a) $\frac{7}{21}$ (b) $\frac{5}{21}$ (c) $\frac{1}{21}$ What is the type of variable X? (a) Discrete (b) Discrete random (c) Continuous 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 What is the expected value of of the squared deviation of the value their mean? (a) Arithmetic Mean (b) Expectation (c) Variance What is the minimum value of variance a random variable? (a) $-\infty$ (b) 1 (c) 0 If $y = ax + b$, what is the value of $V(y)$? (a) $aV(X)$ (b) $a^2V(X)$ (c) $V(X)$ How many parameters are there in a binomial distribution?

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) $Mean > Variance$	e (b) $Mean < Variance$	e (c) $Mean = Varianc$	ee (d) $Mean = 2 \times Variance$			
	Answer the next to	wo questions based on t	the following information	on.			
	X is a binomial variate with expectation 4 and standard deviation $\sqrt{3}$.						
16.	What are the value	es of the parameters (m	nean 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	bution is correct?					
	(a) $Mean > Variance$	e (b) $Mean < Variance$	e (c) $Mean = Varianc$	e (d) $Mean \neq Variance$			
19.	Which one is true	of the parameter (m) o	f Poisson Distribution?	•			
	(a) $m = 0$	(b) $m < 0$	(c) $m > 0$	(d) $m = 1$			
20.	The parameter of a	er 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	y (d) Growth rate			
23.	What is the formula	la of population density	<i>'</i> ?				
	(a) $\frac{M}{F} \times 100$	(b) $\frac{F}{M} \times 100$	(c) $\frac{B}{P} \times 100$	(d) $\frac{P}{A}$			
24.	24. In the following data, what is the dependency ratio?						
	A	ge 0-14 15-24	25-34 35-44 45-54	55-64 65+			
	Popula	atation 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	· · ·					
	(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) $P(A_1UA_2U\cdots UA_n) = \sum_{i=1}^{\infty} P(A_i)^{9}$. (a) i and ii

10. (c) Variance

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

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