## Sylhet Cadet College Model Test Examination - 2023 Class: HSC

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

Time: 25 minutes

Full Marks: 25

An	Answer all the questions. Each question is worth one (1) mark.							
1.	1. Tossing a coin twice generates how many outcomes?							
	(a) 4	(b) 16	(c) 8	(d) 2				
	Answer the next three	e questions based on th	e following information	•				
	A card is drawn from of pack of playing cards.							
2.	What is the probability	ty that the card is a Ki	ng?					
	(a) 0.0192	(b) 0.25	(c) 0.5	(d) 0.0769				
3.	P(The card is not from	m Diamonds)–						
	(a) $\frac{1}{2}$	(b) 0	(c) $\frac{3}{4}$	(d) $\frac{1}{4}$				
4.	P(The card is red or	Clubs)						
	(a) $\frac{1}{4}$	(b) $\frac{1}{2}$	(c) $\frac{2}{3}$	(d) $\frac{3}{4}$				
5.	If a neutral die is thro	own, the probability of	having a digit greater t	han 6 is				
	(a) $\frac{1}{6}$	(b) $\frac{0}{6}$	(c) $\frac{2}{3}$	(d) $\frac{3}{6}$				
6.	Tossing a coin twice g	enerates how many out	comes?					
	(a) 4	(b) 16	(c) 8	(d) 2				
7.	How many conditions	does a probability den	sity function have?					
	(a) 2	(b) 3	(c) 4	(d) 5				
8.	The conditions of a pr	robability distribution a	are-					
	i. $\sum P(X) = 1$							
	ii. $\sum P(X) = 0$							
	iii. $0 \le P(X) \le 1$							
	(a) i and ii	(b) i and iii	(c) ii and iii	(d) i, ii and iii				
			· /					
	Answer the next two	questions using the foll	· /					
	Answer the next two		· /					
9.	Answer the next two	$\begin{array}{c ccc} x & 1 & 2 \\ \hline P(x) & k & 2k \end{array}$	owing information					
9.		$\begin{array}{c ccc} x & 1 & 2 \\ \hline P(x) & k & 2k \end{array}$	owing information	(d) 1				
	What is the value of l	$ \begin{array}{c cccc}  & x & 1 & 2 \\ \hline  & P(x) & k & 2k \end{array} $ (b) $\frac{5}{21}$	3         4         5         6           3k         4k         5k         6k					
	What is the value of k (a) $\frac{7}{21}$	$ \begin{array}{c cccc}  & x & 1 & 2 \\ \hline  & P(x) & k & 2k \end{array} $ (b) $\frac{5}{21}$	3         4         5         6           3k         4k         5k         6k					
10.	What is the value of k (a) $\frac{7}{21}$ What is the type of value (a) Discrete	$\frac{x}{P(x)} \frac{1}{k} \frac{2}{2k}$ $\frac{5}{21}$ <b>ariable X?</b> (b) Discrete random	owing information $ \frac{3}{3}  \frac{4}{4}  \frac{5}{5}  \frac{6}{6k} $ (c) $\frac{1}{21}$ (c) Continuous	(d) 1				
10.	What is the value of k (a) $\frac{7}{21}$ What is the type of value (a) Discrete	$\begin{array}{c cccc} x & 1 & 2 \\ \hline P(x) & k & 2k \\ \hline \end{array}$	owing information $ \frac{3}{3}  \frac{4}{4}  \frac{5}{5}  \frac{6}{6k} $ (c) $\frac{1}{21}$ (c) Continuous	(d) 1				
<ul><li>10.</li><li>11.</li></ul>	What is the value of $R$ (a) $\frac{7}{21}$ What is the type of value (a) Discrete What is $F(\infty)$ for a discrete (a) $-\infty$	$\frac{\mathbf{x}}{\mathbf{P}(\mathbf{x})} \frac{1}{\mathbf{k}} \frac{2}{2\mathbf{k}}$ $\mathbf{x}$	(c) Continuous  (c) 0	(d) 1 (d) Continuous random				
<ul><li>10.</li><li>11.</li></ul>	What is the value of $R$ (a) $\frac{7}{21}$ What is the type of value (a) Discrete What is $F(\infty)$ for a discrete (a) $-\infty$	$\frac{\mathbf{x}  1  2}{\mathbf{P}(\mathbf{x})  \mathbf{k}  2\mathbf{k}}$ $\mathbf{x}$	(c) Continuous  (c) 0	(d) 1 (d) Continuous random				
<ul><li>10.</li><li>11.</li></ul>	What is the value of $K$ (a) $\frac{7}{21}$ What is the type of value (a) Discrete What is $F(\infty)$ for a discrete (a) $-\infty$ The example of a discrete	$\frac{\mathbf{x}  1  2}{\mathbf{P}(\mathbf{x})  \mathbf{k}  2\mathbf{k}}$ $\mathbf{x}$	(c) Continuous  (c) 0	(d) 1 (d) Continuous random				
<ul><li>10.</li><li>11.</li></ul>	What is the value of $F$ (a) $\frac{7}{21}$ What is the type of variate (a) Discrete What is $F(\infty)$ for a discrete (a) $-\infty$ The example of a discrete i. Binomial variate	$\frac{\mathbf{x}  1  2}{\mathbf{P}(\mathbf{x})  \mathbf{k}  2\mathbf{k}}$ $\mathbf{x}$	(c) Continuous  (c) 0	(d) 1 (d) Continuous random				
<ul><li>10.</li><li>11.</li></ul>	What is the value of $K$ (a) $\frac{7}{21}$ What is the type of value (a) Discrete What is $F(\infty)$ for a discrete (a) $-\infty$ The example of a discrete i. Binomial variate ii. Poisson variate	$\frac{\mathbf{x}  1  2}{\mathbf{P}(\mathbf{x})  \mathbf{k}  2\mathbf{k}}$ $\mathbf{x}$ $\mathbf{x}$ $\mathbf{(b)}  \frac{5}{21}$ $\mathbf{ariable}  \mathbf{X}$ $\mathbf{(b)}  \mathbf{Discrete}  \mathbf{random}$ $\mathbf{stribution}  \mathbf{function}  F(x)$ $\mathbf{(b)}  \mathbf{-1}$ $\mathbf{rete}  \mathbf{random}  \mathbf{variable}  \mathbf{is}$	(c) Continuous  (c) 0  (c) 0  (c) 0	(d) 1 (d) Continuous random				
<ul><li>10.</li><li>11.</li></ul>	What is the value of $F$ (a) $\frac{7}{21}$ What is the type of variate $F(\infty)$ for a disconnection of $F(\infty)$ for a disconnection of $F(\infty)$ The example of a disconnection of $F(\infty)$ in $F(\infty)$ Poisson variate $F(\infty)$ in $F(\infty)$ Normal variate	$\frac{\mathbf{x}}{\mathbf{P}(\mathbf{x})} \frac{1}{\mathbf{k}} \frac{2}{2\mathbf{k}}$ $\mathbf{x}$	(c) Continuous  (c) 0	(d) 1 (d) Continuous random				
<ul><li>10.</li><li>11.</li><li>12.</li></ul>	What is the value of $F$ (a) $\frac{7}{21}$ What is the type of variate $F(\infty)$ for a discontinuous $F(\infty)$ for a discontinuous $F(\infty)$ The example of a discontinuous $F(\infty)$ is $F(\infty)$ for a discontinuous $F(\infty)$ for a	$\frac{\mathbf{x}  1  2}{\mathbf{P}(\mathbf{x})  \mathbf{k}  2\mathbf{k}}$ $\mathbf{x}$	owing information    3   4   5   6	<ul><li>(d) 1</li><li>(d) Continuous random</li><li>(d) 1</li></ul>				
<ul><li>10.</li><li>11.</li><li>12.</li></ul>	What is the value of $F$ (a) $\frac{7}{21}$ What is the type of variate $F(\infty)$ for a disconstruction of $F(\infty)$ for a disconstruction of $F(\infty)$ which one is correct? (a) i and ii	$\frac{\mathbf{x}  1  2}{\mathbf{P}(\mathbf{x})  \mathbf{k}  2\mathbf{k}}$ $\mathbf{x}$	owing information    3   4   5   6	<ul><li>(d) 1</li><li>(d) Continuous random</li><li>(d) 1</li><li>(d) i, ii and iii</li></ul>				
<ul><li>10.</li><li>11.</li><li>12.</li><li>13.</li></ul>	What is the value of $F$ (a) $\frac{7}{21}$ What is the type of variate $F(\infty)$ for a disconnection of the example of the example of the expected of the expected of the expected of the expected of the example of the expected of the example of the e	$\frac{\mathbf{x}  1  2}{\mathbf{P}(\mathbf{x})  \mathbf{k}  2\mathbf{k}}$ $\mathbf{x}$	owing information  3 4 5 6 3k 4k 5k 6k  (c) \frac{1}{21}  (c) Continuous  )? (c) 0  3-  (c) ii and iii  I deviation of the value	<ul> <li>(d) 1</li> <li>(d) Continuous random</li> <li>(d) 1</li> <li>(d) i, ii and iii</li> <li>of the random variable from</li> </ul>				

15.	What is the minimum value of variance a random variable?						
	(a) $-\infty$	(b) 1	(c) 0	(d) -1			
16.	If $y = ax + b$ , what is the value of $E(y)$ ?						
	(a) $aE(X) + b$	(b) $a^2 E(X)$	(c) $E(X)$	(d) b			
17.	7. What is the value of $V(5)$ ?						
	(a) 0	(b) 25	(c) 5	(d) 1			
18.	If $P(x) = \frac{1}{n}$ ; $x = 1, 2, 3, \dots, n$ , what is the value of $E(X)$ ?						
	(a) $\frac{n}{2}$	(b) $\frac{n-1}{2}$	(c) $\frac{n+1}{2}$	(d) $n+1$			
19.	If $P(x) = \frac{4- 5-x }{k}$ ; $x = 2, 3, 4, \dots 8$ , what is the value of k?						
	(a) 5	(b) 8	(c) 16	(d) 24			
20.	How many parameters are there in a binomial distribution?						
	(a) 1	(b) 2	(c) 3	(d) 4			
21.	In a Binomial distribution, how are mean and variance related?						
	(a) $Mean > Variance$	(b) $Mean < Variance$	(c) $Mean = Variance$	(d) $Mean = 2 \times Variance$			
22.	When does Binomial distribution tend to Poisson distribution?						
	(a) $n \to \infty$ and $p \to \infty$	(b) $n \to 0$ and $p \to 0$	(c) $n \to \infty$ and $p \to 0$	(d) $n \to 0$ and $p \to \infty$			
23.	What is the mean of Poisson distribution?						
	(a) $\frac{1}{\sqrt{m}}$	(b) <i>m</i>	(c) $\frac{1}{m}$	(d) $1 + \frac{1}{m}$			
24.	The parameter of a Poisson variate is 2. What is its variance?						
	(a) 0	(b) 4	(c) $\sqrt{2}$	(d) 2			
25.	The number of people living per unit area is called—						
	(a) Population Index		(b) Population Density				
	(c) Human Development	Index	(d) Dependency Ratio				
26.	Which formula of GFR is accurate?						
	(a) $GFR = \frac{B}{P} \times 1000$	(b) $GFR = \frac{B}{F_{15-49}} \times 1000$	$O(c) GFR = \frac{B_i}{F_i} \times 1000$	(d) $GFR = \frac{G_i}{F_{15}-49} \times 1000$			

Answer Key

1. (a) 4

2. (d) 0.0769

3. (c)  $\frac{3}{4}$ 

4. (d)  $\frac{3}{4}$ 

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

6. (a) 4

7. (b) 3

8. (b) i and iii

9. (a)  $\frac{7}{21}$ 

10. (b) Discrete random

11. (d) 1

12. (a) i and ii

13. (c) Variance

14. (c) a

15. (c) 0

16. (a) aE(X) + b

17. (a) 0

18. (c)  $\frac{n+1}{2}$ 

19. (c) 16

20. (b) 2

21. (a) Mean > Variance

22. (c)  $n \to \infty$  and  $p \to 0$ 

23. (b) m

24. (d) 2

25. (b) Population Density

26. (b)  $GFR = \frac{B}{F_{15-49}} \times 1000$