

**Sylhet Cadet College**  
**Model Test Examination - 2022**

**Class: HSC**

**Subject: Statistics 2nd Paper (MCQ)**

**Time: 20 minutes**

**Subject Code: 130**

**Full Marks: 25**

**Answer any fifteen (15) questions. Each question is worth one (1) mark.**

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

**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.**

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

13. The value of  $P(3 < X < 5)$  is:  
 (a)  $\frac{1}{2}$  (b)  $\frac{1}{6}$  (c)  $\frac{1}{3}$  (d) 0
14.  $P(x \neq 2)$  is :  
 (a)  $\frac{5}{6}$  (b) 0  
 (c) 1 (d) Can't be found from this information
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  $P(X) = \frac{1}{10}; x = 1, 2, \dots, 10$ , 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
- 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
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)  $a^2$
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)  $\frac{P}{B} \times 100$
25. Which one is a measure of reproduction?  
 i) CBR  
 ii) CDR  
 iii) NRR  
 (a) i (b) ii (c) iii (d) i and ii