

Seat No. : \_\_\_\_\_

# JK-105

January-2021

B.B.A., Sem.-III

CC-206 : Elementary Statistics

Time : 2 Hours]

[Max. Marks : 50

- Instructions :** (1) All Questions in **Section I** carry equal marks.  
(2) Attempt any **TWO** questions in **Section I**.  
(3) Question **5** in **Section II** is **COMPULSORY**.

## Section – I

1. (A) Johanna has two balanced dices which are thrown simultaneously. Find the probability of the following events : **10**
1. The sum of numbers on the dice is 6.
  2. The sum of numbers on the dice is not more than 10.
  3. The sum of numbers on the dice is a multiple of 3.
  4. The product of numbers on the dice is 12.
- (B) Define Probability mass function and write the properties of Expected value. **10**
2. (A) In Jannet Ltd.,  $x$  is distributed as a binomial variate with mean 3 and variance 2, find  $P(3 \leq x \leq 6)$ . **10**
- (B) Write the properties of Poisson Distribution and Hyper Geometric Distribution. **10**
3. (A) Joyaan Ltd. has collected the data. From the following data find the correlation coefficient. **10**

	0-20	20-40	40-60	60-80	80-100	100-120
11	–	–	–	–	1	1
12	–	–	–	2	3	2
13	–	–	2	5	2	–
14	–	1	3	3	–	–
15	1	2	2	–	–	–

- (B) Find the linear equation of Y on X and X on Y from the following data : 10

<b>X</b>	28	41	40	38	35	33	46	32	36	33
<b>Y</b>	30	34	31	34	30	26	28	31	26	31

4. (A) Taksh & Jilvi Ltd. gives the following information. The number of observations in each sample is 5. Draw  $\bar{X}$  and R chart and write the conclusion. 10

Sample	$\bar{X}$	R
1	222.20	2.22
2	220.12	3.90
3	231.43	2.13
4	219.19	2.31
5	215.00	2.18
6	232.68	2.61
7	244.40	2.70
8	236.82	2.32
9	223.18	2.21
10	224.39	2.42

(For  $n = 5$ ,  $A_2 = 0.577$ ,  $D_3 = 0$ ,  $D_4 = 2.115$ )

- (B) Draw operating characteristics curve for a single sampling plan (50, 10, 0) 10

### Section – II

5. Give the following answer : (Attempt any 10) 10

- (1) What is the probability of 53 Sundays in a leap year ?

- (a)  $\frac{2}{7}$  (b)  $\frac{1}{7}$   
(c) 0 (d) None

- (2) In mathematical expectation, what is the maximum total of  $\sum p(x_i)$  ?

- (a) 1 (b) 0  
(c) Any (d) None

- (3) What is the probability of 5 Monday in February which is not a leap year ?

- (a) 0 (b) 1  
(c) 0.5 (d) None

- (4) If one number is randomly selected between 1 to 20, what is the probability that the number is a multiple of 5 ?
- (a)  $\frac{1}{5}$  (b)  $\frac{1}{2}$   
(c)  $\frac{1}{6}$  (d) None
- (5) In mathematical expectation, what is the maximum total of  $\sum p(x_i)$  ?
- (a) 1 (b) 0  
(c) Any (d) None
- (6) Poisson distribution was first given by which mathematician ?
- (a) Jack Poisson (b) Simeon De Poisson  
(c) T.K. Poisson (d) None
- (7) What are the parameters of the Hyper Geometric Distribution ?
- (a) m & n (b) m, n & r  
(c) n & r (d) None
- (8) When (m + n) is very large, Hyper Geometric Distribution tends to which distribution ?
- (a) Hyper Geometric (b) Binomial Distribution  
(c) Poisson Distribution (d) None
- (9) If  $p < 0.5$ , what is the skewness of binomial distribution ?
- (a) Negative (b) Positive  
(c) Symmetrical (d) None
- (10) From the following who has given the binomial distribution for the first item ?
- (a) Jack Bernouli (b) James Bernouli  
(c) Fisher (d) None
- (11) Which of the following values is not possible as a value of r ?
- (a) -0.99 (b) 0.89  
(c) -1.07 (d) None
- (12) Which of the following indicate the functional relation between the two variables ? From the following which is correct for  $b_{13.2}$  ?
- (a) Correlation (b) Mean  
(c) Regression (d) None

- (13) Which of the following values is possible for regression coefficient  $b$  ?
- (a)  $-1$  (b)  $+1$   
(c) Any Value (d) None
- (14) Which correlation coefficient can be used to measure the extent of linear relationship between two variables ?
- (a) Peterson (b) Spearman  
(c) Karl Pearson (d) None
- (15) When we eliminate the linear effect of other variables from these variables, this study is known as which type of study ?
- (a) Average (b) Multiple Correlation  
(c) Partial Correlation (d) None
- (16) C – chart is based on which distribution ?
- (a) Poisson (b) Binomial  
(c) Hyper Geometric (d) None
- (17) The probability that a point will fall outside the control limits in  $\bar{X}$  – chart is \_\_\_\_\_ when only chance causes are present in the process.
- (a) 0.0027 (b) 0.9473  
(c) 0.6745 (d) None
- (18) For control chart  $UCL \bar{X} = 325$  and  $LCL \bar{X} = 275$ , then central line = \_\_\_\_\_.
- (a) 300 (b) 600  
(c) 325 (d) 275
- (19) Which chart is used for controlling number of defects in a TV set ?
- (a) C (b) np  
(c) p (d) None
- (20) For Acceptance Sampling, ATI stands for,
- (a) Average Total Inspection (b) Average Totally Inside  
(c) Both (d) None
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