



DE-010-001407

Seat No. _____

B. B. A. (Sem. IV) (CBCS) Examination

April / May – 2015

Business Statistics : Paper-II

Faculty Code : 010

Subject Code : 001407

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

- Instructions :**
- (i) Attempt all six questions.
 - (ii) Write answer of all questions in main answer sheet.
 - (iii) Figures to the right indicate marks.

1 Answer the following questions selecting proper option from the given options : **20**

- (1) American economist Leontief introduced _____
- (A) Method of input-out analysis
 - (B) Method of least square
 - (C) Method of regression analysis
 - (D) Method of exponential smoothing
- (2) For a time-series Trend and Cyclical fluctuations are _____ fluctuations.
- (A) Long term
 - (B) Short term
 - (C) Minimum
 - (D) None of these
- (3) For a time-series _____ fluctuations are short term fluctuations.
- (A) Cyclical
 - (B) Seasonal
 - (C) Infinite
 - (D) None of these

- (4) Technology matrix is always _____.
- (A) Skew symmetric matrix
 (B) Square matrix
 (C) Idempotent matrix
 (D) None of these
- (5) _____ chart is used for the control of variability in the production process.
- (A) C (B) nP
 (C) R (D) P
- (6) In \bar{X} chart UCL=40.6 and $\bar{\bar{X}}=30.6$ so LCL = _____.
- (A) 0 (B) 10
 (C) 20.6 (D) 71.2
- (7) The chart which involves the no. of defects per unit, is called _____ chart.
- (A) \bar{X} (B) P
 (C) nP (D) None of these
- (8) The value of D_3 in R chart depend upon _____.
- (A) m (B) p
 (C) m and n (D) None of these
- (9) Rejection of null hypothesis which is true is called _____ error.
- (A) Type-1 (B) Type-2
 (C) Type-3 (D) None of these

- (10) In large sample test sample size _____.
- (A) $n \geq 30$ (B) $n > 30$
(C) $n < 30$ (D) None of these
- (11) Degree of freedom for $r \times c$ contingency table is _____.
- (A) rc (B) $(r-1)c$
(C) $(r-1)(c-1)$ (D) $r(c-1)$
- (12) To test of goodness of fit _____ test is used.
- (A) t (B) F
(C) Z (D) None of these
- (13) _____ test is used in analysis of variance.
- (A) F (B) Z
(C) t (D) None of these
- (14) If $F = \frac{s_1^2}{s_2^2}$ then s_2^2 _____ s_1^2 .
- (A) $<$ (B) $>$
(C) \geq (D) \leq
- (15) For comparing the means of two indep. small samples _____ test is used.
- (A) F (B) t
(C) Z (D) χ^2

(16) _____ is called C.F. for ANOVA.

(A) $\frac{T}{N^2}$

(B) $\frac{T^2}{N}$

(C) $\left(\frac{T}{N}\right)^2$

(D) None of these

(17) Game theory is concerned with

(A) predicting the results

(B) only mixed strategy

(C) the choice of an optimal strategy

(D) None of these

(18) A strategy that is best regardless of what rival players do is called _____

(A) First mover advantage

(B) Tit-for-tat

(C) Dominant strategy

(D) None of these

(19) A mixed strategy game can be solved by

(A) LPP method

(B) Algebraic method

(C) Graphical method

(D) None of these

(20) In a two person game, both the players must have an equal no. of strategies

(A) 90% incorrect

(B) correct

(C) 90% correct

(D) None of these

- 2 Explain : P and nP-charts. 10

OR

- 2 The following table gives mean and range of 10 samples each of size 5. Draw \bar{X} and R charts and state your conclusion :

<i>Sample No.</i>	1	2	3	4	5	6	7	8	9	10
\bar{X}	52	50	50	51	47	52	49	54	51	54
R	6	7	6	5	6	9	8	7	7	4

- 3 Explain : Exponential Smoothing. 10

OR

- 3 Find trend by fitting equation of second degree parabola from given data of time series :

$x:$	1987	1992	1997	2002	2007
$y:$	11	12	14	18	16

- 4 (a) Explain : Level of significance, Null hypothesis. 5
(b) Test the significance difference between two sample means from the following data : 5

	<i>Size</i>	<i>Mean</i>	<i>Variance</i>
<i>Sample – I</i>	150	1400	14400
<i>Sample – II</i>	200	1200	6400

OR

- 4 Fit a Poisson distribution to the following data and test the goodness of fit : 10

$x:$	0	1	2	3	4	5
$f:$	49	41	16	10	3	1

- 5 (a) Short note : t test. 5
- (b) Two samples are drawn from two normal populations. 5
Test the significance of equality of two variances :

<i>Sample-I:</i>	15	11	21	22	18	17	13	19	20	14		
<i>Sample-II:</i>	20	26	39	35	28	27	31	21	34	36	23	30

OR

- 5 ANOVA for the following data : 10

Treatment	<i>A</i>	12	16	16		
	<i>B</i>	15	14	14	15	
	<i>C</i>	17	16	15	14	
	<i>D</i>	15	12	15	16	16

- 6 Explain : 10
- (1) Dominance rule
- (2) $2 \times n$ and $m \times 2$ game.

OR

- 6 Determine the strategies for player-A and player-B and the value of game by using algebraic method : 10

		Player B			
		<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>
Player A	<i>I</i>	3	5	4	2
	<i>II</i>	5	6	2	4
	<i>III</i>	2	1	4	0
	<i>IV</i>	3	3	5	2
