

**BACHELOR OF COMPUTER APPLICATIONS
(BCA) (Revised)**

Term-End Examination

December, 2016

02505

BCS-040 : STATISTICAL TECHNIQUES

Time : 2 hours

Maximum Marks : 50

Note :

- (i) Attempt both sections, i.e., Section A and Section B.
- (ii) Attempt any **four** questions from Section A.
- (iii) Attempt any **three** questions from Section B.
- (iv) Non-scientific calculator is allowed.

SECTION A

1. Calculate the mean and standard deviation for the following data :

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<i>Marks</i>	<i>Number of Students</i>
0 – 10	7
10 – 20	8
20 – 30	10
30 – 40	36
40 – 50	12
50 – 60	17
60 – 70	10

2. Find the correlation coefficient between two variables X and Y and the slope of regression line Y on X i.e., b_{YX} . The observations on 20 pairs are as follows :

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$$\sum_{i=1}^{20} x_i = 15, \quad \sum_{i=1}^{20} y_i = -6, \quad \sum_{i=1}^{20} x_i y_i = 50,$$

$$\sum_{i=1}^{20} x_i^2 = 61, \quad \sum_{i=1}^{20} y_i^2 = 90.$$

3. Box X contains 5 red and 4 blue balls, Box Y contains 2 red and 5 blue balls. A ball is drawn at random from each box. Find the probability of drawing one red and one blue ball.

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4. Suppose 2% of the items made in a factory are defective. Find the probability that there are
- (a) 3 defective items in a sample of 100, and
- (b) no defective item in a sample of 50.

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5. Define time series and describe its components briefly, with examples.

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SECTION B

6. Describe the following tests (in detail) : 10
- (a) Chi-square test for Goodness of fit
 - (b) F-test for Equality of two variances
7. Differentiate between any *two* of the following : 10
- (a) Neyman Allocation and Optimum Allocation
 - (b) Correlation and Regression
 - (c) Random Sampling and Non-Random Sampling
8. The sales figures of a company are given below. Compute the moving averages for the length of 4 and 2 separately. 10

Day	Sales
1	230
2	200
3	250
4	300
5	200
6	225
7	400
8	450
9	415
10	420
11	500
12	300
13	400
14	300
15	315

9. A dice is rolled 1200 times with the following results :

<i>Number on dice</i>	<i>Frequency</i>
1	195
2	289
3	202
4	242
5	163
6	109

Test if the dice is unbiased at 5% level of significance.

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