

**BACHELOR OF COMPUTER APPLICATION
(BCA-REVISED)**

Term-End Examination

June, 2013

BCS-040 : STATISTICAL TECHNIQUES

Time : 2 hours

Maximum Marks : 50

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- Note :** (i) *Attempt both sections A and Section B*
(ii) *Attempt any four questions from Section A*
(iii) *Attempt any three questions from Section B*
(iv) *Use of Non-scientific calculator is allowed*
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SECTION-A

1. Define-the terms Random Experiment and Random Variable ? Briefly discuss the types of Random Variables, with suitable examples. 5
2. The Probability that atleast one of the two Independent events occur is 0.5. Probability that first event occurs but not the second is $(3/25)$. Also the probability that the second event occurs but not the first is $(8/25)$. Find the probability that none of the two event occurs. 5

3. Marks of six students are tabulated below : 5

Name :	Raj	Anil	Amit	Om	Rita	Renu
Marks :	54	50	52	48	50	52

From the population, tabulated above, you are suppose to choose a sample of size two.

- (a) Determine, how many samples of size two are possible
- (b) Construct sampling distribution of means by taking samples of size 2 and organize the data.

4. Expand the term ANOVA. Briefly discuss the utility of ANOVA, with suitable examples. 5

5. List the advantages and disadvantages of using a sampling approach instead of a census approach for studying the characteristics of data. 5

6. Given the following sample of 10 numbers 5
- 12 41 48 58 14 43 50 59 15 79
- Compute Mean deviation and Standard deviation for the data given above.

SECTION - B

7. Explain *any two* of the following with the help of an example each : 5+5=10
- (a) Goodness of fit test
 - (b) Test of Independence
 - (c) Criteria for a good estimator
8. Explain the term "Time Series". Briefly discuss any two categories of time series analysis. 10
9. Explain *any two* of the following : 5+5=10
- (a) Cluster sampling
 - (b) Stratified sampling
 - (c) Systematic sampling
10. A company wants to estimate, how its monthly costs are related to its monthly output rate. The data for a sample of nine months is tabulated below : 10

Out Put (Tons)	1	2	4	8	6	5	8	9	7
Cost (Lakhs)	2	3	4	7	6	5	8	8	6

Using the data given above, perform following tasks :

- (a) Calculate the best linear regression line, where the monthly output is the dependent variable and monthly cost is the independent variable.
- (b) Use the regression line to predict the company's monthly cost, if they decide to produce 4 tons per month.