

**MASTER OF BUSINESS ADMINISTRATION
EVERONN (MBAEV)**

Term-End Examination

December, 2012

MCN-038 : QUANTITATIVE TECHNIQUES

Time : 3 hours

Maximum Marks : 100

Note : Answer any five questions. All questions carry equal marks.

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1. (a) What is an infeasible solution, and how does it occur ? How is the condition recognised in the graphical method ? **10**
 - (b) What is an unbounded solution, and how is this condition recognised in the graphical method ? **10**
 2. (a) Explain what is trans-shipment problem ? Explain how it can be formulated and solved as a transportation problem. **10**
 - (b) Give the mathematical formulation of an assignment problem. How does it differ from a transportation problem ? **10**

3. From the data given below, in which several items were missing. Calculate Karl Pearson's coefficient of correlation. 20

x	48	50	?	49	51	48	?	49
y	36	35	?	38	?	36	?	30

More additional information given was that

$$\boxed{\sum dx dy = -16} \quad \boxed{\sigma_x = 2.3} \quad \text{and} \quad \boxed{\sigma_y = 2.7}$$

4. In a bolt factory machines A, B, C manufactures respectively 25%, 35% and 40% of the total of their output 5, 4, 2 % are defective bolts. If a bolt is drawn at random from the product and is found to be defective, what are the probabilities that it was manufactured by machine A, B, and C. 20
5. If we have the following data from a sample of products manufactured during the day each hour = 55, 57, 65, 62, 58, 64, 63, 70. If the mean production is 60. Calculate the value of (t) sample distribution. 20
6. Briefly comment on *any four* of the following : **5x4=20**
- (a) A population have a definite or limited size.
 - (b) Every loop has an even number of cells and the least being four.
 - (c) Dependant variable is also called the Response variable.
 - (d) A forecast is an estimate of the future happening based on a systematic forwarding of past data.

- (e) A decision tree consists of nodes, branches, probability estimates and payoffs.
7. Distinguish between *any four* of the following : $5 \times 4 = 20$
- (a) Probability sampling Vs. Non-probability sampling.
 - (b) MODI method Vs Stepping stone.
 - (c) Cyclic variation Vs Seasonal variation
 - (d) Simplex method Vs Graphical method
 - (e) Initial Vs. Feasible solution.
8. Write short notes on *any four* of the following : $5 \times 4 = 20$
- (a) Errors in sample survey
 - (b) Z-distribution
 - (c) Analysis of variance (Anova)
 - (d) Big M- method
 - (e) Regression.
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