Subject Code: MB916

M B A - I Semester [R09] Regular/Supplementary Examinations, February – 2012

QUANTITATIVE ANALYSIS FOR BUSINESS DECISIONS

Time: 3 Hours **Max Marks: 60**

Answer any FIVE questions. All questions carry EQUAL marks including Q.No.8 is compulsory

1. (a) Discuss the role and scope of Quantitative techniques for scientific decision-making in a changing business environment.
   (b) What are decision trees? How and what type of situation are they employed for decision-making

2. (a) Describe the revised simplex procedure for solving a LPP
   (b) Describe the role of duality for sensitivity analysis of a linear programming Problem.

3. (a) Determine the optimum basic feasible solution to the following transportation available problem.

			Available
50	30	220	1
90	45	170	3
250	200	50	4
Required 4	2	2	

   (b) Explain the assignment model as a special case of the transportation model.

4. (a) Write a detailed note with suitable examples the importance of Game theory in solving business decisions.
   (b) What is normal distribution? Explain the properties of normal distribution.

5. (a) An advertising firm is trying to determine the demographics for a new product. They have randomly selected 75 people in each of 5 different age-groups and introduced the product to them. The results are given below.

	Age Group				
Future activity	**18-29**	**30-39**	**40-49**	**50-59**	**60-69**
Purchase frequently	12	18	17	22	32
Seldom purchase	18	25	29	24	30
Never purchase	45	32	29	29	13

   State the null hypothesis. If level of significance is 0.01, should the null Hypothesis be rejected ? (Given the tabulated value of the test statistic is 20.090)
   (b) Explain the test of hypothesis. What are the applications of Chi-square test?

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6. (a) Calculate the coefficient of correlation between are group and rate of mortality from the following data:

Age group	0 - 20	20-40	40 - 60	60 - 80	80 - 100
Rate of mortality	350	280	540	760	900

(b) A candidate is selected for interview for three posts. For the first there are three candidates, for the second there are four and for the third there are two. What are chances of his getting atleast one post?

7. (a) Explain the difference between control charts for variables and control charts for attributes.
(b) The XYZ company's Quality Control Department is managed by a single clerk, who takes on an average 5 minutes in checking parts of each of the machine coming for inspection. The machines arrive once in every 8 minutes on the average. One hour of the machine is valued at Rs.15 and a clerk's time is valued atRs.4 per hour. What are the average hourly queuing system costs associated with the quality control department?

8. a) Construct a PERT network from the following information and determine the critical path: Activity Immediate Predecessor to tm tp

A – 1 2 3
B A 2 4 6
C A 2 6 10
D B 6 8 10
E C 4 6 8
F C 6 10 14
G E 8 10 12
H F 12 14 16
I G, H 4 8 12
J G, H 10 12 14
K I 2 4 6
L J 6 10 14

b) Assuming that the schedule allows 40 days to complete the whole project, calculate probability of completion by the schedule date.

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