M.C.A. DEGREE EXAMINATIONS: NOVEMBER 2009

Fourth Semester

P07CA402: RESOURCE MANAGEMENT TECHNIQUES

Time: Three Hours

Maximum Marks: 100

Answer ALL Questions:-

PART A (10 x 2 = 20 Marks)

1. What are the limitations of LPP?

2. What do you mean by infeasible solution in LPP?

3. What is the degeneracy in transportation problem?

4. What is unbalanced assignment problem?

5. Distinguish between CPM and PERT.

6. What is Time-Cost trade-off?

7. Explain seasonal variations.

8. Write the normal equations in trend analysis.

9. Define index number.

10. Write the Fisher's ideal index formula.

PART B (5 x 16 = 80 Marks)

11 (a) A television company has three major departments for manufacturing of its two Models A and B. Monthly capabilities are given as follows:

Department	Per unit Requirement (Hrs)		Hours available per month
	Model A	Model B	
I	4.0	2.0	1600
II	2.5	1.0	1200
III	4.5	1.5	1600

The marginal profit of model A is Rs. 400 each and that of model B is Rs. 100 each. Assuming that the company can sell any quantity of either product due to favourable market conditions, determine the optimum output for both the models the highest possible profit for this month and the slack time in the three departments.

(OR)

(b) Solve the following Linear Programming Problem:

$$\text{Min. } z = -3x_1 + x_2 + x_3$$
$$x_1 - 2x_2 + x_3 \leq 11$$
$$-4x_1 + x_2 + 2x_3 \geq 3$$
$$2x_1 - x_3 = -1 \quad \text{where} \quad x_1, x_2, x_3 \geq 0.$$