‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖ **6**

Third Semester Five Year B.B.A. LL.B. (Hon's) Examination, June 2013
QUANTITATIVE TECHNIQUES

Duration : 2¹/₂ Hours   Max. Marks : 70

Instructions : 1. Answer all **5** Questions.
2. **One** essay type and **one** short note question or problem from **each unit** have to be attempted, which is referred as part (a) and (b) in all the units.
3. Figures to the right indicate marks.

UNIT – I

Q. No. 1. (a) Discuss the various phases in solving an OR problem.   Marks : 9

OR

Define operations research. Give features of OR ?

(b) Write short note on :
Limitations of operations Research.   Marks : 5

OR

Objectives of operations Research.

UNIT – II

Q. No. 2. (a) Explain the meaning of a linear programming problem stating its uses and give its limitations.   Marks : 9

OR

What is linear programming ? Discuss the applications of linear programming.

(b) What are the essential characteristics of linear programming model ?   Marks : 5

OR

What is sensitivity analysis ?

UNIT – III

Q. No. 3. (a) Explain the following :   Marks : 9

i) North – west corner rule

ii) Least cost method

iii) Vogel's approximation method.

OR

P.T.O.

Obtain the initial solution for the following TP using (i) NWCR (ii) Least cost method.

Destinations

		A	B	C	Supply
	O₁	2	7	4	5
	O₂	3	3	1	8
Origine	O₃	5	4	7	7
	O₄	1	6	2	14
	Demand	7	9	18	34

(b) Write a short note on :

Transportation problem. Marks : 5

OR

Degeneracy in transportation problem.

UNIT – IV

Q. No. 4. (a) Explain in detail assignment problem and its application. Marks : 9

OR

Solve assignment problem

	I	II	III	IV	V
1	11	17	8	16	20
2	9	7	12	6	15
3	13	16	15	12	16
4	21	24	17	28	26
5	14	10	12	11	15

(b) Write a short note on :

Hungarian method. Marks : 5

OR

Difference between transportation and assignment problem.

UNIT – V

Q. No. 5. (a)   Explain the terms :   Marks : 9

   i) Optimistic time

   ii) Pessimistic time

   iii) most likely time and

   iv) Expected time in PERT networks

OR

A Project has the following schedule.

Activity	Expected Time	Activity	Expected Time
1 – 2	2	4 – 7	4
1 – 3	2	5 –8	2
1 – 4	2	6 – 8	4
2 – 5	4	7 – 9	5
3 – 6	5	8 – 9	3
3 – 7	8	9 – 10	4

Required

a) Construct PERT network.

b) Find critical path and its duration.

(b)   What are the steps followed in use of PERT and CPM tool.   Marks : 5

OR

Write a short note on :

CPM Critical Path Method.

_____