

M.C.A. - I (2 Years) New CBCS Pattern Semester-I
PSMCAT104.1 - Elective-I Paper-IV - Operational Techniques

P. Pages : 2

Time : Three Hours



GUG/S/25/13638

Max. Marks : 80

- Notes :
1. All questions are compulsory and carry equal marks.
 2. Draw neat and labelled diagram wherever necessary.
 3. Avoid vague answers and write the answers relevant to questions only.

1. Either:

- a) What is operational Research ? Explain operational techniques in detail. 8
- b) What do you mean by mathematical modeling in operation research? 8

OR

- c) Explain different phases of operational research. 8
- d) Write the impact of computer in Operation Research field. 8

2. Either:

- a) Explain the advantages and limitations of linear programming. 8
- b) Define mode and calculate mode for the following series. 8

Size	10 – 20	10 – 30	10 – 40	10 – 50	10 – 60	10 – 70	10 – 80	10 – 90
Freq.	4	16	56	97	124	137	146	150

OR

- c) Describe the graphical solution model using example. 8
- d) What is allocation models? Explain requirement applications in detail. 8

3. Either:

- a) Explain least cost cell method in detail. 8
- b) Find the minimum cost for the following transportation problem. 8

	D ₁	D ₂	D ₃	D ₄	Demand
A	6	1	9	3	70
B	11	5	2	8	50
C	10	10	4	7	90
Supply	85	35	50	45	

OR

- c) Explain in detail about Hungarian method. 8
 - d) What are the different special cases of assignment problems? 8
- 4.** Either:
- a) Write a detailed note on objectives and application of Network Techniques. 8
 - b) What is critical path? Explain critical path method analysis in detail. 8

OR

- c) Explain the poisson process and exponential distribution in detail. 8
 - d) Explain in detail element of a queueing system in detail. 8
- 5.** Attempt all the questions.
- a) Explain in short about the basics of operational research. 4
 - b) Write the difference between linear programming and allocation models. 4
 - c) Describe stepping stone method in detail. 4
 - d) Explain the methodology of CPM in short. 4
