

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/W/24/13638**

Max. Marks : 80

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

**Either:**

1. a) What do you mean by Operational Research? Explain in detail. 8
- b) Explain different phases of Operational Research Study. 8

**OR**

- c) Describe Mathematical modeling of Real Life Problem. 8
- d) Explain Basics of operational Research in brief. 8

**Either:**

2. a) What is linear programming? Explain in detail. 8
- b) Explain different allocation methods in programming. 8

**OR**

- c) Explain requirement Application in linear programming. 8
- d) Explain different graphical methods in linear programming. 8

**Either:**

3. a) Discuss on NWCM in detail. 8
- b) Explain various assignment problem in transportation. 8

**OR**

- c) Explain Vogel's Approximation method in detail. 8
- d) Describe various transportation problem in brief. 8

**Either:**

4. a) What do you mean by Network analysis? Explain. 8
- b) Explain Element of Queueing System in detail. 8

**OR**

- c) Describe PERT method in brief. 8
- d) Give a short note on following- 8
- i) Poisson Queueing System
- ii) Non-Poisson Queueing System
5. Solve all the questions.
- a) Write scope and limitations of Operational Research. 4
- b) What is formulation? Explain. 4
- c) Explain Hungarian method in short. 4
- d) Explain the following- 4
- i) CPM Method ii) Cost models

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