

Registration No. _____



**BIJU PATNAIK INSTITUTE OF INFORMATION TECHNOLOGY
& MANAGEMENT STUDIES, BHUBANESWAR**

**Semester : 10th Sem. IMBA
Batch : 2021-26
Subject : Operations Research Applications
Subject Code : 16IMN1001D**

**Date : 09.02.2026
Class Test : I
Duration : 1 Hr.
Full Marks : 30**

Section- A

1. Answer any four out of following questions. [4 x 2 = 8]
- a) Define operations research. [CO1]
 - b) What is the difference between LPP and IPP? [CO1]
 - c) Explain Unbalanced TP briefly. [CO1]
 - d) Write two applications of operations research. [CO1]
 - e) How is travelling salesman problem difference from Assignment problem? [CO1]

Section-B

2. Answer any two questions out of following [2 x 6= 12]
- a) Explain Kandle's notations from queuing theory. [CO1]
 - b) Solve the following TP using NWCR. [CO2]

| | D | E | F | G | AVAILABLE |
|-----|-----|-----|-----|-----|-----------|
| A | 11 | 13 | 17 | 14 | 250 |
| B | 16 | 18 | 14 | 10 | 300 |
| C | 21 | 24 | 13 | 10 | 400 |
| REQ | 200 | 225 | 275 | 250 | |

- c) Write the different steps of Branch and bound method in IPP. [CO1]

Section-C

3. Answer any one out of following questions. [1 x 10= 10]
- a) Solve the following Travelling salesman problem. [CO2]

| | A | B | C | D | E |
|---|---|---|---|---|---|
| A | - | 4 | 7 | 3 | 4 |
| B | 4 | - | 6 | 3 | 4 |
| C | 7 | 6 | - | 7 | 5 |
| D | 3 | 3 | 7 | - | 7 |
| E | 4 | 4 | 5 | 7 | - |

- b) Explain the objectives and scope operations research in detail. [CO1]

All the Best