

**BACHELOR OF ENGINEERING IN ELECTRICAL ENGINEERING
(EVENING) EXAMINATION, 2018**

(5th Year, 2nd Semester)

INDUSTRIAL MANAGEMENT

Time : Two hours

Full Marks : 100

Answer *any five* questions :

1. a) Solve the following LP problem :

$$\text{Maximize } z = 100x_1 + 40x_2$$

Subject to

$$3x_1 + 6x_2 \leq 180$$

$$4x_1 + 2x_2 \leq 204$$

$$x_1, x_2 \geq 0 \quad 10$$

- b) Write the dual of the above LP problem. Also solve the same graphically. 10

2. a) What is V-A-T analysis ? 5
- b) Distinguish among MTS, ATO, MTO and ETO with examples known to you. 15

3. a) Given :

Year :	1	2	3	4	5	6	7
Demand :	132	119	105	97	113	128	147

[Turn over

[2]

- i) Plot the data on graph paper and establish a forecast for the upcoming period. 4
- ii) Determine the forecast for the 8th year. 16

4. Solve the following assignment problem showing the LP formulation :

	1	2	3	4
A	10	12	19	11
B	5	10	7	8
C	12	14	13	11
D	8	15	11	9

20

5. A project schedule has the following characteristics :

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

- i) Construct a network diagram.

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- ii) Find the critical path(s), critical activities & project duration.
- iii) Find out total float for each activity. 20

6. Perform ABC analysis using the following data :

Item	Units	Unit price (Rs./unit)
1	3000	90
2	270	100
3	1700	5
4	1500	4
5	340	50
6	2500	1
7	2000	2
8	170	500

20

7. Write short notes on **any four** : 4×5=20

- i) Break even analysis
- ii) Forecasting control and monitoring
- iii) EOQ model
- iv) Pareto analysis
- v) SWOT analysis
- vi) MAD and MAPE