

Bachelor of Metallurgical and Materials Engineering Examination, 2022(4th Year, 2nd Semester)**Industrial Management & Engineering Economics**

Time: Four Hours

Full Marks: 70

Answer any five questions (only first five answered questions shall be examined)

1. From the following data draw out a network diagram, calculate the critical path by activity on arrow method, find the project completion time. How much is the float time of activities A, B and C? **6 + 2 + 2 + 2 + 1 + 1**

Activity	Immediate Predecessor(s)	Activity time (weeks)
A	--	4
B	--	3
C	--	35
D	A	30
E	A, B	4
F	C	15
G	C, E	8
H	C, E	6
I	D, G	3
J	F, H	3

2. From the following list of transactions prepare appropriate journal entries, ledger entries and the relevant month- end trail balance **4 + 7 + 3**
- (i) On 2/1/22, Lakshmi Narayanan started a business called, Maha Laxmi Traders, with an investment of Rs.50 lakh and another Rs. 50 lakh as short term loan.
- (ii) On 5/1/22, acquired building properties (Fixed Assets) for Rs. 50 Lakh on credit.
- (iii) On 10/1/22, purchased inventories of Rs. 20 Lakh in cash.
- (iii) On 31/1/22, made sales of Rs 20 Lakh on credit.
- (iv) On 31/1/22, converted 50 % of the short-term loan into long-term loan

3. What are the assumptions of EOQ model? Show the diagram of EOQ model without back-order and without quantity discount. Derive this model without back-order and quantity discount. **3 + 4 + 7**

4. A marketing manager has five salesmen and five sales districts. Considering the capabilities of the salesmen and nature of the districts, the marketing manager estimates that the sales per month (in hundred rupees) for each salesman in each district would be as follows:

	Districts				
	A	B	C	D	E
1	32	38	40	28	40
2	40	24	28	21	36
3	41	27	33	30	37
4	22	38	41	36	36
5	29	33	40	35	39

Solve the assignment of salesmen to districts that will result in maximum sales (apply Hungarian method).

[Turn over

5.

Write short notes on any four of the following:

4 x 3.5

- (a) Law of demand and determinants of demand; (b) Indifference curves; (c) Central problems of an economy,
(d) Cobb-Douglas production function; (e) Isoquants; (f) Price control

6.

Define 'Economies of Scale'. Classify 'Internal Economies of Scale'. What does 'External Economies of Scale' mean to you? Explain classifications of 'External Economies of Scale'.

2 + 5 + 2 + 5

7.

From the following balances extracted from the books of Agni Co., **prepare a trading account, a profit and loss account** for the year ending 31st December, 2021, and a **balance sheet** as on 31st December, 2021.

	Rs.		Rs.
Stock on 1st January, 2021	11,000	Returns outwards	500
Bills receivables	4,500	Trade expenses	200
Purchases	39,000	Office fixtures	1,000
Wages	2,800	Cash in hand	5,500
Insurance	700	Cash at bank	4,750
Sundry debtors	30,000	Rent and taxes	1,100
Carriage inwards	800	Carriage outwards	1,450
Commission (Dr.)	800	Sales	65,000
Interest on capital	700	Bills payable	3,000
Stationary	450	Creditors	19,650
Returns inwards	1,300	Capital	17,900
The stock on 31 st December, 2021 was valued at Rs.25,000.			5 + 4 + 5

8.

- (a) What are the features of a partnership company? 4
 (b) Enumerate advantages and disadvantages of joint stock organizations. 4
 (c) Explain forms of Public-Private Partnership. 4
 (d) What is the difference between acquisitions and takeovers? 2