CLASS: BTECH   SEMESTER : IV
BRANCH: PIE   SESSION : SP2023

SUBJECT: PE218 PRODUCTION AND OPERATIONS MANAGEMENT
TIME: 02 Hours   FULL MARKS: 25

INSTRUCTIONS:
1. The question paper contains 5 questions each of 5 marks and total 25 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates

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			CO	BL
Q.1(a)	What is the scope of Production and Operation Management?	[2]	1	1
Q.1(b)	What are the different types of production systems? Explain.	[3]	1	1
Q.2(a)	What is forecasting? What are the different quantitative techniques for forecasting?	[2]	2	1
Q.2(b)	A port has unloaded large quantities of grains from ships during the past seven quarters.	[3]	2	5

Q.2(b) continued: The port manager wants to test the use of exponential smoothing to see how well the technique works in predicting tonnage unloaded. He guesses that forecast of grain unloaded for first quarter was 175 tons. Two values of α are examined: α =.10 & α =.50. Suggest which should be selected.

Quarter	1	2	3	4	5	6	7
Actual Tonnage unloaded	180	168	159	175	190	205	180

Q.3   The forecast demand for a product for 6 months cycle is shown. Each unit requires 10-man hours and labour cost is Rs.6 per hour regular time and Rs.9 per hour overtime. The total cost per unit is estimated to be Rs.200 and can be subcontracted at the cost of Rs.208/unit. Currently there are 20 workers employed and hiring and training cost for additional workers are Rs.300 per person whereas lay off cost are Rs 400 per person. Company policy is to retain safety stock equal to 20 % of monthly forecast and each month's safety stock becomes the beginning inventory for the next month. There are currently 50 units in stock and the carrying cost is Rs. 2 per month. Stock out cost is Rs 20 per unit per month.   [5] 2 5

	Jan	Feb	Mar	Apr	May	June
Forecasted Demand	300	500	400	100	200	300
Work days	22	19	21	21	22	20
Worker hr at 8/day	176	152	168	168	176	160

Follow Plan of varying the workforce size to accommodate demand.

Q.4(a)	What is loading? What are the different types of loading?	[2]	3	1
Q.4(b)	Calculate the minimum cost using assignment method.	[3]	3	5

Job ↓/ Machine →	A	B	C
R-35	Rs.11	Rs.14	Rs.6
S-65	Rs.8	Rs.10	Rs.11
T-51	Rs.9	Rs.12	Rs.7

Q.5(a)	What is scheduling and what are the different techniques of scheduling?	[1]	3	1
Q.5(b)	Five jobs are to be assigned to different work centers. The processing time and due dates are given below. Determine the sequence of processing according to (1) EDD (2) SPT and suggest which should be preferred.	[4]	3	5

Job	A	B	C	D	E
Processing Time(days)	6	2	8	3	9
Due date(days)	8	6	18	15	23