U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

July 2023 Semester End Main Examinations

Programme: B.E. **Semester: VI**
Branch: Mechanical Engineering **Duration: 3 hrs.**
Course Code: 20ME6DEPOM **Max Marks: 100**
Course: Production and Operation Management **Date: 17.07.2023**

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

			UNIT - I	CO	PO	Marks
1	a)		Define operations management. How is it been managed by operations manager using various schools of management? Explain.	*CO1*	*PO1*	**12**
	b)		Explain strategic planning forced choice model with a block diagram.	*CO1,2*	*PO1*	**08**
			UNIT - II			
2	a)		Explain the activities involved in capacity planning.	*CO2*	*PO1*	**10**
	b)		Your firm is deciding to invest in one of two products A or B. Product A will cost \$300 to develop and there's a 60% chance it will generate \$700 and 40% chance that it will lose \$100. Product B costs \$500 to develop, but has a 70% chance of earning \$900 for the firm and a 30% chance of losing \$200. What is the expected monetary value of the two products? Which should your firm invest in?	*CO2*	*PO1,2*	**10**
			UNIT - III			
3	a)		Highlight the characteristics of demand pattern over time. Sketch.	*CO3*	*PO1*	**08**
	b)		Compare and contrast forward and backward scheduling.	*CO3*	*PO1*	**06**
	c)		The demand for a product during the last 10 months is given below. Forecast the demand for the next period by the method of moving average, taking data of the last three months. Also forecast the sales of period 11 by the method of weighted moving average by assigning respective weights of 0.5, 0.3 and 0.2 to demand of periods 10, 9 & 8.	*CO3*	*PO1,2*	**06**

Period	1	2	3	4	5	6	7	8	9	10
Demand	55	58	60	52	62	65	68	63	67	70

			OR			
4	a)		Explain the different stages of product life cycle with a neat sketch.	*CO3*	*PO1*	**10**
	b)		Eight jobs are to be processed in a machine shop for which three identical machines are available. The times required for processing	*CO3*	*PO1,2*	**10**

		each job are given below: Job | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 Time | 2 | 4 | 6 | 3 | 6 | 8 | 1 | 3 Jobs cannot be pre-empted. Use the longest processing time heuristic to find a schedule to minimize the make span? Represent in Gantt chart.			
		UNIT - IV			
5	a)	Explain the different steps of Value engineering.	*CO4,5*	*PO1*	**10**
	b)	In operating an inventory system, what are the various types of costs that the managers should consider?	*CO4*	*PO1*	**10**
		OR			
6	a)	Discuss the behavioural pitfalls in inventory control.	*CO4*	*PO1*	**08**
	b)	A company has a monthly demand of 800 units of a product. The company can produce 8 products per hour when it starts a production run. It costs Rs. 3000 for shop set – up to start a production run. The inventory carrying cost amounts to Rs. 1.50 per unit per month. What is the optimal batch size? Assume 25 working days in a month and eight working hours in a day. How frequently should run be undertaken and what should be the length of each run?	*CO4*	*PO1,2*	**08**
	c)	The demand for a product is 500 units per month. Every production run requires a set-up cost of Rs. 1000. It costs Rs. 1.00 to store unit product for one month. What should be the optimal number of units to produce in each production run?	*CO4,5*	*PO1,2*	**04**
		UNIT - V			
7	a)	How Job rotation and job enlargement are used by organizations to enhance employee engagement.	*CO6*	*PO1*	**10**
	b)	Highlight the basic ways of establishing a time standard.	*CO6*	*PO1*	**05**
	c)	The time study of a machinery operation recorded cycle times of 8, 7, 8 and 9 minutes. The analyst r ated the observed worker as 90%. The firm uses a 0.15 allowance fraction. Compute the standard time**.**	*CO6*	*PO1,2*	**05**

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