

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2025***Seventh Semester**Mechanical Engineering***OIM353 – Production Planning and Control***Regulations - 2021***Duration : 3 Hrs****Maximum Marks : 100****PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)**

Q.No	Questions	BLT	CO	Marks
1.	List out the objectives of planning and control.	L1	1	2
2.	What do you understand by break-even analysis?	L1	1	2
3.	Define method study.	L1	2	2
4.	Classify the types of process chart.	L2	2	2
5.	Summarizes the major objective of assembly line balancing.	L2	3	2
6.	Define machine balancing.	L1	3	2
7.	Define master scheduling.	L1	4	2
8.	What is meant by line efficiency and balance delay?	L1	4	2
9.	Define buffer stock, and re-order quantity.	L1	5	2
10.	Illustrate the elements and objectives of JIT.	L2	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

Q.No	Questions	BLT	CO	Marks
11.	a i Explain the functional and operational aspects of products design with suitable examples.	L2	1	8
	ii Explain different types of production systems and differentiate them.	L2	1	8
	Or			
	b i A manufacturer sells an item for Rs.13 per unit. He incurs a fixed cost of Rs.60,000 and Variable cost of Rs.8 unit. Analyze the break even production quantity and also the number of units to be produced to get a profit of Rs.12,000.	L4	1	8
	ii Explain the economics of new design.	L2	1	8
12.	a i Infer the following techniques of work measurement. (i) Time study (ii) Production study (iii) Work sampling.	L4	2	8

- ii Explain in brief the steps involved in conducting the method study procedure. L2 2 8

Or

- b i Examine the multiple activity charts with a good example. L4 2 8
- ii Inference the following work measurement techniques i) PMTS ii) work sampling iii) Synthetic data iv) Performance rating. L4 2 8

13. a Identify the steps involved in the standard procedure for process planning also explain various types of process planning methods. L3 3 16

Or

- b A gear Manufacturer has gear shaper and gear hobber. The gear can be processed on gear shaper as well as gear hobber. The following information is given. Which of the two machines will you choose to do the job if the order quantity if (i) 1000 numbers and order is unlikely to repeat (ii) 1000 numbers and the order is likely to repeat for 3 years? L4 3 16

	Gear Shaper	Gear Hobber
Machine time per piece(min)	12	4
Machine Cost per hour (Rs.)	45	120
Setup time (min)	60	90
Tooling up cost (Rs.)	400	2000

14. a i Construct the Gantt charts in detail. L4 4 8
- ii Explain the Function of MRP with a neat block diagram. L4 4 8

Or

- b An assembly line is to be designed to operate 7.5 hours per day and supply a steady demand of 300 units per day. The following table shows the tasks and their performance times. L4 4 16

Preceding Performance			Preceding Performance		
Task	Tasks	Time (Seconds)	Task	Tasks	Time (Seconds)
A	—	70	G	D	60
B	—	40	H	E	50
C	—	45	I	F	15
D	A	10	J	G	25
E	B	30	K	H, I	20
F	C	20	L	J, K	25

(i) Draw the precedence diagram. (ii) What is the cycle time (iii) Assign tasks to work stations stating your logical rules (iv) What is the efficiency of your line balance?

15.	a	Explain the Inference of ABC analysis and its significance in the inventory control with suitable examples.	L4	5	16
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Or

b	A manufacturer has to supply his customers 3600 units of his product per year. Shortages are not permitted. Inventory carrying cost amounts Rs.1.2 per unit per annum. The set up cost per run is Rs.80. Find (i) Economic order quantity (ii) Optimum number of orders per annum (iii) Average annual inventory cost (iv) Optimum period of supply per optimum order.	L4	5	16
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