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Question Paper Code: AMEB52



INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal-500043, Hyderabad

B.Tech VII SEMESTER END EXAMINATIONS (REGULAR/SUPPLEMENTARY) - DECEMBER 2022

Regulation: R18

PRODUCTION PLANNING AND CONTROL

Time: 3 Hours

(MECHANICAL ENGINEERING)

Max Marks: 70

Answer FIVE Questions choosing ONE question from each module

All Questions Carry Equal Marks

All parts of the question must be answered in one place only

MODULE – I

- (a) Summarize the term “Production Planning and Control (PPC)”. State and explain the objectives of PPC. [BL: Understand| CO: 1|Marks: 7]

(b) Classify production systems according to volume and variety they produce. Explain the characteristics of each type of production system in detail. [BL: Understand| CO: 1|Marks: 7]
- (a) How does PPC direct the organizations in utilizing the production facilities efficiently? Distinguish production planning, process planning, and product planning [BL: Understand| CO: 1|Marks: 7]

(b) Discuss organization of PPC department. Distinguish between the Continuous and Intermittent types of production. [BL: Understand| CO: 1|Marks: 7]

MODULE – II

- (a) List out various qualitative and quantitative methods of forecasting. Explain functions of inventories relevant to inventory costs in ABC analysis. [BL: Understand| CO: 2|Marks: 7]

(b) A company uses 10000 units per year of an item. The purchase price is Rs.1 per item. The ordering cost is Rs.25 per order. The carrying cost per year is 12% of the inventory value. Find

 - The EOQ
 - The number of orders per year
 - If the lead time is 4 weeks and assuming 50 working weeks per year, find the reorder point. [BL: Apply| CO: 2|Marks: 7]
- (a) What are characteristics of exponential smoothing? Elucidate briefly P-systems and Q-systems in forecasting. [BL: Understand| CO: 2|Marks: 7]

(b) A firm uses simple exponential smoothing with $\alpha = 0.02$ to forecast demand. The forecast for the first week of January was 400 units, whereas actual demand turned out to be 450 units.

 - Forecast the demand for the second week of January
 - Assume that the actual demand during the second week of January turned out to be 460 units. Forecast the demand upto to February third week, assuming the subsequent demands as 465, 434, 420, 498 and 462 units. [BL: Apply| CO: 2|Marks: 7]

MODULE – III

5. (a) How do you classify inventories into A class, B class and C class items? Mention the control procedures to be exercised on A class, B class and C class items. [BL: Understand| CO: 3|Marks: 7]
- (b) State the objectives of line of balance(LOB). Illustrate the operation of fixed order period system with neat time scale diagram and state its advantages over Q-system [BL: Apply| CO: 3|Marks: 7]
6. (a) Outline the working principle of fixed order quantity system. State its advantages and disadvantages over P system. [BL: Understand| CO: 4|Marks: 7]
- (b) The XYZ company produces wheat flour as one of their product. The wheat flour is produced in the pack of 1kg. The demand for wheat flour is 40,000 packs/year& the production rate is 50,000 packs/year. Wheat flour 1kg pack cost 0.50 each to make. The procurement cost is Rs5. The carrying cost is high because the product gets spoiled in few week times span. It is nearly 50 percent of cost of one pack. Find out the operating doctrine [BL: Apply| CO: 4|Marks: 7]

MODULE – IV

7. (a) Distinguish between single level bill of materials and indented bill of materials, with an example for each type. [BL: Understand| CO: 5|Marks: 7]
- (b) A machine tool company decides to make four sub assemblies through four contractors. Each contractor is to receive only one sub assembly. The cost of each sub assembly is determined by the bids, submitted by each contractor and is given in Table 1 in thousands of rupees. Assign the different sub assemblies to contractors so as to minimize the total cost. [BL: Apply| CO: 5|Marks: 7]

Table 1

Contractors	A	B	C	D
Subassembly				
1	15	13	14	17
2	11	12	15	13
3	13	12	10	11
4	15	17	14	12

8. (a) Bring out any four differences between i) Scheduling and loading ii) Job shop scheduling and flow shop scheduling [BL: Understand| CO: 5|Marks: 7]
- (b) Five jobs each of which must go through the machines A, B and C in the order ABC processing times (in hours) as sequence of the jobs that will minimize the total elapsed time shown in Table 2. Determine the sequence of the jobs that will minimize the total elapsed time.

Table 2

Jobs	1	2	3	4	5
Machine A	5	7	6	9	5
Machine B	2	1	4	5	3
Machine C	3	7	5	6	7

[BL: Apply| CO: 5|Marks: 7]

MODULE – V

9. (a) With the help of a organizational charts, explain the centralized and decentralized system of dispatching. List the merits and demerits of centralized and decentralized system of dispatching. [BL: Understand| CO: 6|Marks: 7]
- (b) State the activities of dispatcher. Describe the following forms used in dispatching:
- i) Move order
 - ii) Production ticket [BL: Understand| CO: 6|Marks: 7]
10. (a) Write about manufacturing order with a neat flow chart. List the applications of computer in carrying out production planning control. [BL: Understand| CO: 6|Marks: 7]
- (b) How do you present production delays? Discuss about the courses of production delays with examples. [BL: Understand| CO: 6|Marks: 7]

