

Code No: 138GR

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year II Semester Examinations, July - 2021

PRODUCTION PLANNING AND CONTROL

(Common to CE, ME, PTM)

Time: 3 hours

Max. Marks: 75

Answer any Five Questions
All Questions Carry Equal Marks

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1. Define term "Production Planning and Control". State and explain the objectives of Production planning and control. [15]
2. 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.
 - a) Forecast the demand for the second week of January
 - b) 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. [5+10]
- 3.a) Derive Harris-Wilson formula for economic order quantity? What are its limitations?
- b) Alpha industry estimates that it will sell 12,000 units of its product for the forth coming year. The ordering cost is Rs. 100 per order and the carrying cost per unit per year is 20% of the purchase price per unit. The purchase price per unit is Rs.50. Find i) Economic order quantity ii) No. of orders per year and iii) Time between successive orders. [7+8]
4. The following list defines the precedence relationships and element times for a component:

Element	Processing time(min)	Immediate predecessors
1	5	-
2	3	1
3	7	1
4	5	1
5	6	3
6	3	3,4
7	4	2
8	6	5,6
9	8	4
10	9	7,8,9

The required production volume in 8 hour shift is 24 completed assemblies. Design an assembly line using Ranked Positional Weight (RPW) method. [15]

5. 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 below in thousands of rupees. Assign the different sub assemblies to contractors so as to minimize the total cost.

[15]

Contractors	A	B	C	D
Sub-Assembly				
1	15	13	14	17
2	11	12	15	13
3	13	12	10	11
4	15	17	14	16

- 6.a) State the activates of dispatcher. [5+10]
b) Explain the types of follow-up used in productive control. [5+10]
7. What are applications of computer in production planning and control? Explain them briefly. [15]
8. Explain the following:
a) Inputs of MRP system
b) Production ticket used in dispatching
c) Objectives of scheduling. [5+5+5]

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