

R16

Code No: 138EG

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year II Semester Examinations, December - 2020

PRODUCTION PLANNING AND CONTROL

(Mechanical Engineering)

Time: 2 Hours

Max. Marks: 75

Answer any Five Questions

All Questions Carry Equal Marks

1. Write about characteristics of various types of production systems. [15]

2. A electrical Contractor's record during the last five weeks indicate the number of job requests:

Week	1	2	3	4	5
Requests	20	22	18	21	22

Predict the number of requests for week 6 using each of the following methods:

- a) Naïve
- b) A three year moving average method
- c) Exponential smoothing with $\alpha=0.30$. Use 20 for week 2 forecast. [5+5+5]

3. Suppose a company produces a type of desk that has the BOM given below. The desk is made by assembling two drawers, two handles, one drawer frame, and two legs into a drawer module. Then two drawer modules, desk back and a desk top are assembled into a desk.

Level No	Item description	No. Required	Lead Time(Weeks)
00	Desk		1
01	Desk top	1	2
01	Desk back	1	1
01	Leg/drawer module	2	1
02	Drawer frame	1	1
02	Desk legs	2	1
02	Drawers	2	2
02	Handles	2	2

For the following desk requirements, construct

a) the material requirement plans for the desk and b) Desk top and Desk back.

Week	1	2	3	4	5	6	7	8	9	10
Requirement	-	-	-	-	20	0	50	0	0	30

[7+8]

4. Twelve tasks, with times and precedence requirements as shown in the following table, are to be assigned to workstations using a cycle time of 1.5 minutes.

Task	Length (minutes)	Immediate Predecessor
a	0.1	-
b	0.2	a
c	0.9	b
d	0.6	c
e	0.1	-
f	0.2	d, e
g	0.4	f
h	0.1	g
i	0.2	h
j	0.7	i
k	0.3	j
l	0.2	k

- a) Draw the precedence diagram for this line.
 b) Compute the % of idle time and efficiency according to RPW method. [7+8]

5. The processing times for 7 jobs on three machines A, B, and C are shown in the Table below, and the processing order for all the jobs on the three machines is A-C-B. Determine the optimal sequence of the jobs for processing on the three machines, and also find the total elapsed time. [15]

Job No.	1	2	3	4	5	6	7
Processing Time on A (Hrs)	3	8	7	4	9	8	7
Processing Time on B (Hrs)	6	7	5	11	5	6	12
Processing Time on C (Hrs)	4	3	2	5	1	4	3

6. List out various charts used in LOB and explain about each with a diagram. [15]
 7. State and explain various steps involved in dispatching procedure. [15]
 8. State and explain various applications of computer in production planning and controlling functions. [15]

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