

(Three Hours)

Total Marks: 80

Instructions:

- Q. 1 is compulsory.
- Attempt any **THREE** questions from the remaining questions
- Assume suitable data wherever necessary
- Figures to the right indicate full marks.

29 MAY 2018

- Q1 Answer any four 20
- Functions of PPC
 - Work orders
 - JIT and MRP
 - Computer aided process planning
 - Forecasting Error and Forecasting Bias
 - Factors influencing scheduling
- Q2 A) Explain in details the pre-requisites of the PPC in the form of various types of data. 10
- B) Annual requirement of an item is 2400 units. Each item costs the company Rs. 6/unit. The manufacturer offers discount of 5% if 500 or more quantities are purchased. The ordering cost is Rs 32 /order and inventory cost is 16%. Whether it is advisable to accept the discount? Comment. 10
- Q3 A) For the given demand pattern, Estimate the sales forecast for the year 2018, using exponential smoothing forecaster. Take $\alpha=0.5$ and the forecast for the year 2013 as 180 units. Compare the forecast with least square method. 10

Year	2013	2014	2015	2016	2017
Demand	200	188	179	190	208

- B) What do you understand by 10
- Safety Stock
 - Instantaneous Stock replenishment
 - Reorder Level
 - Lead Time
 - Economic Order Quantity
- Q4 A) Explain the linkage of Product Planning with Process Planning and describe the various steps involved in making a process plan. 10

Turn Over

- B) Four different jobs can be made on four different machines. The set up and take down costs are assumed to be prohibitively high for changeovers. The matrix below gives the cost in rupees of producing Job J on Machine J .

		MACHINES			
		M1	M2	M3	M4
JOBS	J1	5	7	11	6
	J2	8	5	9	6
	J3	4	7	10	7
	J4	10	4	8	3

How should the jobs be assigned to the various machines so that the total cost is minimized?

- Q5 A) Construct the network for the following activities. The three time estimates for activities are given; calculate the Estimated Time for the activities. Determine the critical path. What is the probability that the project will be completed in 20 days?

Activities	To	Tm	Tp
1-2	2	2	8
2-3	1	1.5	11
2-4	0.5	1	7.5
3-4	0	0	0
3-5	1	2.5	7
4-5	6	7	8
3-6	1	2	3
4-6	3	4	11
5-6	4	6	8

- B) Explain the following
- Difference between PERT and CPM.
 - Types of Floats and their calculations.

- Q6 A) What are the principle functions of Dispatching? What are the documents generally prepared while performing Dispatching function?

- B) The utility data for a network is given below. Crash the network to minimum project duration and determine the project cost for that duration.

Activity	Normal		Crash	
	Duration (weeks)	Cost (Rs)	Duration (weeks)	Cost (Rs)
0-1	1	5000	1	5000
1-2	3	5000	2	12000
1-3	7	11000	4	17000
2-3	5	10000	3	12000
2-4	8	8500	6	12500
3-4	4	8500	2	16500
4-5	1	5000	1	5000