

SAMPLE EXAMINATIONInstructions: Closed text.

1. Describe the following types of production systems so as to clearly bring out their differences:
- Job shop production
 - Batch production
 - Cellular manufacturing.
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2. Describe clearly the application of each of the following charts. Draw a sample of each.
- Assembly chart
 - Routing sheet
 - Flow Process Chart
 - Gang Chart.
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3. The known demand for a product (in hundreds) for the last eight periods is listed below:

Period:	1	2	3	4	5	6	7	8
Demand:	5.0	8.3	13.9	16.2	15.4	18.6	16.4	17.5

Predict the demand for periods 1 to 9 using the exponential smoothing technique using alpha (α) values of (i) 0.2 and (ii) 0.8. Which alpha value is better and why?

4. The ACME job shop has been subcontracted by a large company to manufacture and supply a bearing sleeve at the rate of 3,000 units per week. Five operations are needed in sequence (10-20-30-40-50) to produce this sleeve on two different machines (A and B). Details of the operations and machines are shown below.

Operation No:	10	-->	20	-->	30	-->	40	-->	50
Machine Used:	A		B		A		B		B

Machine Type	Scrap Rate (%)	Output Rate/hour (units)	Production Efficiency (%)	Machine Cost (\$)
A	4	30	77	10,000
B	2	20	82.5	5,000

Assuming a single shift operation of 40 hrs. per week, compute

- the number of machines of each type that should be purchased, and
- the total cost of the purchase.

Show all your calculations.