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BE (6th Semester)

Examination, April - May, 2016

(New Scheme)

Production Management

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Time Allowed : 3 hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : (i) Part (a) of each question is compulsory.
Attempt any **two** parts from (b), (c) and (d) in
each question.

(ii) Answers should be precise. Marks will be
deducted for unnecessary lengthy answers.

(iii) The figures in the right-hand margin indicate
marks.

Unit - I

1. (a) What is 'Incremental Cost'? 2
- (b) Explain the various aspects of product design and development giving suitable examples. CSVTUonline.com 7
- (c) Explain with block diagram the relationship between elements of cost and components of cost giving suitable examples. 7
- (d) A factory, producing only one item, which it sells for ₹ 12.50 per unit has a fixed cost equal to ₹ 60,000 and variable cost ₹ 7.50 per unit. Find out –
- (i) the number of units to be produced to break even;
- (ii) no. of units to be produced to earn a profit of ₹ 12,000;
- (iii) the profit, if 25000 units are produced and sold. 7
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Unit - II

2. (a) What are the components of Time-Series Analysis? 2

- (b) A survey revealed that demand for coolers in towns has given the following data :

Population in town (in 10^6)	X	=	5	7	8	11	14
No. of coolers demanded	Y	=	45	65	55	75	95

Fit a linear regression of Y on X and estimate the demand for coolers for a town whose population is 20×10^6 .

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- (c) The data given below shows the sales data for a commodity during four quarters of the year from 2010 to 2014. Calculate seasonal index 7

Year	Quarterly sales in ₹ × 1000			
	I	II	III	IV
	quarter	quarter	quarter	quarter
2010	35	39	34	36
2011	35	42	37	40
2012	35	39	37	42
2013	40	46	38	45
2014	41	44	42	45

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- (d) Forecast the demand for the following series by Exponential Smoothing Method [$\alpha = 0.3$] : CSVTUonline.com 7

Period	→	1	2	3	4	5	6	7	8	9	10
Actual Demand	→	10	12	8	11	9	10	15	14	16	15

Unit - III

3. (a) What is Product Structure Tree? 2
- (b) Explain Forward and Backward Scheduling with neat sketches. 7
- (c) Using Johnson's sequencing algorithm, solve n-job × 2-machine problem with reference to table below :

Table

Jobs	J1	J2	J3	J4	J5
Machine-1 (hrs.) :	4	7	3	5	4
Machine-2 (hrs.) :	6	2	8	9	1

- (i) Total Elapsed Time CSVTUonline.com
- (ii) Idle Time for Machine-2
- (iii) Optimal Sequence 7
- (d) Explain various types of material handling equipments which are commonly used in industry. 7

Unit - IV

4. (a) Explain the term 'Inventory' precisely in context with materials management. 2
- (b) Define Store Keeping. Describe briefly the various functions of stores. 7
- (c) Explain ABC analysis as regard to its concept, procedure and graphical representation. CSVTUonline.com 7
- (d) A manufacture has to supply his customers 3600 units of his product per year. Shortage are not permitted. Inventory carrying cost amount ₹ 1.2/- per unit per annum. The set-up cost per run is ₹ 80/-. Find—
- (i) Economic Order Quantity;
- (ii) Optimum number of orders per annum;
- (iii) Average annual inventory cost (minimum);
- (iv) Optimum period of supply per optimum order. 7

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Unit - V

5. (a) Draw O. C. curve for a sampling plan and clearly label all the elements of the curve in it. 2

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(b) Explain the difference between Inspection and Quality Control as regards the scope, applicability and device used. 7

(c) Plot the 'C' chart as per the number of defects as given below in 10 casting inspected. What conclusions will you draw from this chart? 7

Sr. No. of casting	No. of defects on Inspection
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1	5
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2	6
---	---

3	2
---	---

4	0
---	---

5	4
---	---

6	7
---	---

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7	1
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8	5
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9	3
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(7)

(d) Explain the importance of the following with respect to Quality Control Management : CSVТУonline.com 7

(i) Just in Time Manufacturing

(ii) Kahban System

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