Exam Seat No:_____ **Enrollment No:**_____

C.U.SHAH UNIVERSITY

WADHWAN CITY

University (Winter) Examination -2013

Course Name : M.Tech(Mech)Sem-I **Subject Name: -Computer Aided Production Management**

Duration :- 2:30 Hours **Date : 8/1/2014**

Instructions:-

(1) Attempt all Questions of both sections in same answer book / Supplementary.
(2) Use of Programmable calculator & any other electronic instrument is prohibited.
(3) Instructions written on main answer Book are strictly to be obeyed.
(4) Draw neat diagrams & figures (If necessary) at right places.
(5) Assume suitable & Perfect data if needed.

SECTION-I

Q-1 a) What is meant by seasonality index? Why is it required to smooth the seasonality index for forecasting the demand? 04

b) What is ABC analysis for inventory control? List its advantages. 03

Q-2 a) The Demand for a product during the last 10 quarters is given below 07

Quarter	1	2	3	4	5	6	7	8	9	10
Demand(units)	40	50	45	55	57	60	58	62	60	65

Use exponential smoothing with trend correction to forecast the demand for quarters 11 and 12. Use $\alpha = 0.30$, $\beta = 0.20$

b) State the objectives of Plant Layout Design. Explain the algorithm and procedure of CRAFT. 07

OR

Q-2 a) The Demand for a product during the last 10 years is given below. Estimate the demand for the next two years by the method of regression. 07

Year	1	2	3	4	5	6	7	8	9	10
Units	124	135	145	150	167	157	161	170	187	168

b) A new plant to be established will receive raw material from three suppliers P, Q & R and supply finished products to three warehouses U, V & W. The sources of raw material and the destination points may be considered as the existing facilities. The coordinates of the existing facilities and the amount of material movement between the existing facilities and the new facility are as follows: 07

Sr. No	Existing facility	Coordinates:		Material movement to and from new facility
		X	Y	
1	P	400	300	600
2	Q	200	500	400
3	R	300	100	500
4	U	100	550	300
5	V	500	400	600
6	W	350	600	600

Find the optimal location for the new plant.

Q-3	a)	Describe the condition under which Johnson's rule can be applied to solve the sequencing problem of n jobs through m machines. Write the algorithm for the same.	07
	b)	Derive an equation to find out optimal lot size by simple EOQ model.	07

OR

Q-3	a)	Explain Retrieval type process planning with suitable example.	07
	b)	A company needs 6000 units of product per month. The product is purchased from outside for which the set-up cost is Rs 2000 per order. The cost of holding inventory, in terms of capital tied up amounts to Rs 1.50 per unit per month. How frequently should the company place orders for the product?	07

Section -II

Q-4	a)	Suppose the lead time for procurement of a product gets doubled. Will you recommend doubling its buffer stock? Justify your answer.	04
	a)	List the functions of Shop Floor Control System.	03
Q-5	a)	A finished product P503 is assembled by joining subassemblies S101 and S102 with the help of six screws (S1001). Subassembly S101 is made by assembling two units of component S205 and three units of S206. Subassembly S102 is made by assembling two units of S208 and four units of S210. Draw the product structure for the finished product.	07
	b)	Explain the methodology adopted in implementing ERP.	07

OR

Q-5	a)	What is an MRP sheet? What information does it contain?	07
	b)	Explain the generic model of ERP system and its selection.	07
Q-6	a)	Write short note on computer generated time standards.	07
	b)	Explain the multiplicative congruence method for generation of random numbers.	07

OR

Q-6	a)	With neat sketch explain the flow of information in Shop Floor Control System.	07
	b)	The weight of a product has a normal distribution with a mean of 150g and a standard deviation of 15g. Find, by simulation, the sample mean and the sample standard deviation for a sample size of four.	07

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