M.E. Second Semester (Production Tech. & Mgt.) (P.T.) (CBS)
13534 : Production Management : 2 SPTM 1

P. Pages : 3

AU - 3244

Time : Three Hours

0941

Max. Marks : 80

Notes :
1. Answer **three** question from Section A and **three** question from Section B.
2. Due credit will be given to neatness and adequate dimensions.
3. Assume suitable data wherever necessary.
4. Illustrate your answer necessary with the help of neat sketches.
5. Use of non programmable calculator is permitted.
6. Use of pen Blue/Black ink/refill only for writing the answer book.

SECTION - A

1. a) What is production management ? Discuss the objectives and scope of production management. **5**

   b) The sales data for water pumps manufactured by XYZ company is given below. Forecast the demand for the water pumps for next three years using least square method. **8**

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Sales ('000)	30	33	37	39	42	46	48	50	55	58

2. a) What is capacity planning ? Explain the long term and short term capacity strategies. **5**

   b) The sales data of Sunshine company manufacturing consumer durables for the year 2015 is given below : **8**

Months	Jan	Feb	Mar	April	May	June	July	Sept	Oct.	Nov.	Dec.
Sales (Rs. '000)	400	490	570	500	640	680	710	800	820	910	950

   Compute :
   i) 3 months moving average
   ii) Forecast the demand for Jan. 2016
   iii) If actual demand for Jan. 2016 is 920 units, what should be the forecast for the month of Feb. 2016.

3. a) What are forecast errors ? Explain in brief Mean Absolute Deviation (MAD) and BIAS measure of forecast error. **5**

   b) The processing times for five jobs and their due dates are given for a single machine scheduling below : **9**

Job	A	B	C	D	E
Processing time (Hrs.)	9	7	5	11	6
Due date (in days)	16	20	25	15	40

   Applying SPT and EDD sequencing priority rules determine :
   i) Average completion time.
   ii) Average number of jobs in the system each day.
   iii) Average job lateness.

AU - 3244

1

P.T.O

4. a) Explain the functions of production control. 5

   b) A component is to be processed on lathe and milling machines respectively. The sequence of operation is first turning and then milling. The machine times are as follows : 8
   Turning : 12 minutes
   Milling : 20 minutes
   Estimate the number of machines required to machine 2500 components per week if available machine hours per week are 48. Also propose the steps to reduce number of machines required.

5. a) What is production system ? Differentiate between Intermittent and continuous production system. 5

   b) Blue Star company has received two job orders. X and Y, both of which require processing at machine I and II. The first come first served rule is used to sequence the job. Job X arrived in advance of job Y. The routings and estimated processing times for Jobs through machines are given below. Develop schedule for the jobs on the machines using forward and backward scheduling procedures : http://www.sgbauonline.com 8

Route Sheet : Job X			Route Sheet : Job Y		
Sequence	Machine	Processing time (Hrs)	Sequence	Machine	Processing time (Hrs)
1	I	2	1	I	2
2	II	3	2	II	3
3	I	1			

SECTION - B

6. a) Distinguish between standardization, simplification and specification. 4

   b) What is 'selective inventory control' ? Explain various techniques of selective inventory control. 7

   c) Enumerate the fundamental objectives of materials management. 3

7. a) The information regarding the precedence relationship and element time for a new product is shown below : 9

Element	Te (min)	Immediate Predecessors
1	1.00	-
2	0.5	-
3	0.8	1, 2
4	0.3	2
5	1.2	3
6	0.2	3, 4
7	0.5	4
8	1.5	5, 6, 7

Cycle time = 1.5 min
i) Construct the precedence diagram.
ii) Determine number of work stations and assignment of elements to three stations using any one line balancing method.
iii) Find out balance delay.

AU - 3244   2

b) Distinguish between centralized and decentralised purchasing in an organisation.   **4**

8. a) Annual requirement of an item is 2400 units. Each item costs the company Rs. 6. The manufacturer offers a discount of 5% if 500 or more quantities are purchased. The ordering cost is Rs. 32 per order and inventory carrying cost is 16%. Whether it is advisable to accept the discount ? Comment.   **8**

b) Explain the various costs associated with inventory control.   **5**

9. a) Annual requirement of a manufacturing company is 10,00,000 units of raw material. The reorder level (R.O.L.) system of stock replenishment is followed. Ordering cost is Rs. 12.5 per order and inventory carrying cost is 25% of unit cost of raw material. The demand is constant throughout the year. The lead time is 15 days. Determine :   **8**
   i) Economic order quantity.
   ii) Lead time consumption.
   iii) Re-order level
   iv) Average inventory.

b) Describe the fundamental functions of a store in a manufacturing industry. Also list out various types of stores.   **5**

10. a) Explain the following methods used for pricing the material issues :   **8**
   i) LIFO
   ii) Average cost method
   iii) Standard price method
   iv) Actual price method
   v) Replacement price method.

b) Discuss the steps adopted in purchasing procedure in a large scale manufacturing industry.   **5**

****