UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
Online End Semester Examination, December 2020

Course   : Materials Management   Semester: III
Programme : BBA (LM)   Time: 03 hrs.
Course Code: LSCM 2003   Max. Marks: 100

Instructions: 1. All questions are compulsory
                      2. This question paper has three sections

SECTION A (30 Marks)

1. Each Question will carry 5 Marks
2. Attempt all questions in this section

S. No.		Marks	CO
Q 1	If the opening inventory is 400 units, demand is 900 units, and production is 800 units, what will be the ending inventory? (a)300 units (b) 200 units (c) 400 units (d) 500 units	5	CO 1
Q 2	A company wants to produce 500 units over the next 3 months at a level rate. The months have 19, 20, and 21 working days, respectively. On the average, how much should the company produce each day to level production(average daily production)? (a) 9.6 units (b) 8.3 units (c) 5.6 units (d) 4.3 units	5	CO 1
Q 3	Metrics in a supply chain are: (a) Governed by the International Metric Commission (b) Measurements of performance (c) A charge passed on to customers (d) Not used on transportation	5	CO 1
Q 4	Priority in production planning relates to: (a) routing (b) how much of what is needed and when (c) capacity (d) an objective of the firm	5	CO 1
Q 5	A work center consisting of 7 machines is operated 16 hours a day for a 5-day week. Utilization is 80%, and efficiency is 110%. What is the rated weekly capacity in standard hours? (a) 495.6 hours (b) 492.8 hours (c) 432.6 hours (d) 435.8 hours	5	CO 2

Q 6	Given the following data, complete the table. There are 30 on hand. Order quantity is 60 units	5	CO 3

Week	1	2	3	4
Forecast	20	30	50	20
Projected available				
Scheduled receipts				

(a) the projected available in week 3 is 40
(b) the projected available in week 4 is 30
(c) there is a scheduled receipt in week 4
(d) a and b are true

SECTION B (50 Marks)

1. There are five questions in this section each question is of 10 marks
2. Attempt all questions in this section

Q 7	Describe each of the following plans in terms of their purpose, planning horizon, level of detail, and planning cycle: a. Strategic business plan. b. Production plan. c. Material requirements plan. d. Production activity control	**10**	**CO2**
Q 8	Define the following (a) MPS (b) DRP (c) BOM (d) ERP	**10**	**CO2**
Q 9	Define material requirement planning & what are the inputs to material requirement planning systems?	**10**	**CO2**
Q 10	A company makes and sells a seasonal product. Based on a sales forecast of 2000, 3000, 6000, and 5000 per quarter, calculate a level production plan, quarterly ending inventory, and average quarterly inventory. If inventory carrying costs are $3 per unit per quarter, what is the annual cost of carrying inventory? Opening and ending inventories are zero. **OR** Define the following: (a)Utilization (b)Efficiency (c) Rated capacity (d) Demonstrated capacity	**10**	**CO2**
Q 11	Suppose management stated that it could tolerate only one stockout per year for a specific item. For this particular item, the annual demand is 52,000 units, it is ordered in quantities of 2600, and the standard deviation of demand during the lead time is 100 units. The lead time is one week. Calculate: a. Number of orders per year. b. Service level.	**10**	**CO3**

	c. Safety stock. d. Order point. [Note: the value for safety factor for given service level are 90%(1.28), 95%(1.65) 99%(2.33) & 99.99%(4.00)]		

SECTION-C (20 marks)

1. In this section there are two questions attempt any question
2. Each question carries equal weightage

Q 12	(a)What will be the inventory turns ratio if the annual cost of goods sold is $24 million a year and the average inventory is $6 million? (b) What would be the reduction in inventory if inventory turns were increased to 12 times per year? also calculate if the cost of carrying inventory is 25% of the average inventory, what will the savings be? ## OR A company making lawnmowers has a central supply attached to its factory and two distribution centers. Distribution center A forecasts demand at 25, 30, 55, 50, and 30 units over the next 5 weeks and has 100 lawnmowers in transit that are due in week 2. The transit time is 2 weeks, the order quantity is 100 units, and there are 50 units on hand. Distribution center B forecasts demand at 95, 85, 100, 70, and 50 over the next 5 weeks. Transit time is 1 week, the order quantity is 200 units, and there are 100 units on hand. The central warehouse has a lead time of 2 week, the order quantity is 500 units and there are 400 on hand. Calculate the gross requirements, projected available, and planned order releases for the two distribution centers, and the gross requirements, projected available, and planned order releases for the central warehouse.	**20**	**CO 3**