

<b>Name:</b>	
<b>Enrolment No:</b>	

**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**  
**End Semester Examination, December 2018**

<b>Course:</b> Materials Management	<b>Semester:</b> III
<b>Programme:</b> BBA(LM)+BBA(Core)-Operations Management	<b>CC:</b> LSCM 2003
<b>Time:</b> 03 hrs.	<b>Max. Marks:</b> 100
<b>Instructions:</b> All sections are compulsory	

**SECTION A (20 Marks)**  
**Attempt all question in this section**

<b>1.(A)</b>	<b>Fill in the blank</b>	<b>(11 marks)</b>	
(i)	BOM stands for.....	<b>1</b>	<b>C03</b>
(ii)	MRP-II stands for.....	<b>1</b>	<b>C01</b>
<b>(B)</b>	<b>Explain the following</b>	<b>(3*6=18 marks)</b>	
(i)	ERP	<b>3</b>	<b>C05</b>
(ii)	DRP	<b>3</b>	<b>C03</b>
(iii)	pipeline inventory	<b>3</b>	<b>C04</b>
(iv)	MPS	<b>3</b>	<b>C02</b>
(v)	CRP	<b>3</b>	<b>C03</b>
(vi)	ETO	<b>3</b>	<b>C01</b>

**SECTION B (20 Marks)**  
**Attempt any 4 question, each question carries 5 marks only** **(5\*4=20 marks)**

2 (a)	An item has a setup cost for production of \$500 per order, and the inventory carrying cost for the item is \$ 12 per year. The demand for the item is constant at 11 units per day. The production rate is 50 units per day while the item is being produced. What is the non-instantaneous economic order quantity?	<b>5</b>	<b>C04</b>
(b)	What are the various methods of evaluating inventory?	<b>5</b>	<b>C04</b>
(c)	What are the various manufacturing systems?	<b>5</b>	<b>C05</b>
(d)	What are the inputs to material requirement planning systems?	<b>5</b>	<b>C02</b>
(e)	What do you understand by aggregate inventory management?	<b>5</b>	<b>C05</b>

**SECTION-C (30 marks)**  
**Attempt any 3 question, each question carries 10 marks** **(10\*3=30 marks)**

3(a)	A hardware company stocks nuts & bolts and orders them from a local supplier once every 2 weeks(10 working days). Lead time is 2 days. The company has determined the average demand for bolts is 150 per week (5 working days), and it wants to keep a safety stock of 3 days' supply on hand. An order is to be placed this week, and stock on hand is 130 bolts. Calculate (i) What is the target level? (ii) How many bolts should be ordered this time?	<b>10</b>	<b>C04</b>
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(b)	Rolph & company stated that it could tolerate only two stockout per year for a specific item & for this particular item, the annual demand is 52000 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 (i) Number of order per year (ii) Service level (iii) safety stock (iv) 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)]	10	C04
(c)	(i)What will be the inventory turns ratio if the annual cost of goods sold is Rs 2400000 a year and the average inventory is Rs. 600000 (ii) What would be the reduction in inventory if inventory turns were increased to 12 times per year? (iii) If the cost of carrying inventory is 25% of the average inventory, what will the savings be?	10	C04
(d)	Discuss the five major levels in manufacturing planning & control system?	10	C05

**SECTION-D(30 marks)**

**Read the situation & attempt both the following questions**

4(a)	Given the following MRP record and an EOQ of 250 units, calculate the planned order receipts using the EOQ. Next calculate the period-order quantities and the planned order receipts. In both cases, calculate the ending inventory and the total inventory carried over the 10 weeks											(15)	C02
	Weeks	1	2	3	4	5	6	7	8	9	10		
	Net Requirements	100	50	150		75	200	55	80	150	30		
	Planned order receipts												
(b)	An item has an annual demand of 25000 units, a unit cost of \$10, an order preparation cost of \$10, and a carrying cost of 20%. It is ordered on the basis of an EOQ, but the supplier has offered a quantity discount of 2% on orders of \$10000 or more. Should the offer be accepted?											(15)	C03

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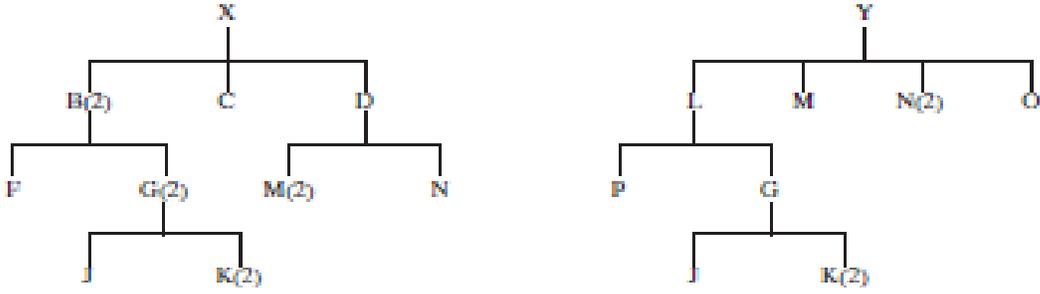
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**SECTION A (20 Marks)**  
**Attempt all question in this section**

<b>1.(A)</b>	<b>Attempt the numerical</b>	<b>(2 marks)</b>	
(i)	If the opening inventory is 500 units, demand is 1000 units, and production is 900 units, what will be the ending inventory?	<b>1</b>	<b>C04</b>
(ii)	A company has 9000 units on hand and the annual usage is 48,000 units. There are 240 working days in the year. What is the days of supply?	<b>1</b>	<b>C03</b>
<b>(B)</b>	<b>Explain the following</b>	<b>(3*6=18 marks)</b>	
(i)	Make to stock	<b>3</b>	<b>C05</b>
(ii)	POQ	<b>3</b>	<b>C05</b>
(iii)	MRP	<b>3</b>	<b>C02</b>
(iv)	MRO	<b>3</b>	<b>C04</b>
(v)	FAS	<b>3</b>	<b>C03</b>
(vi)	Assemble to order	<b>3</b>	<b>C05</b>

**SECTION B (20 Marks)**  
**Attempt any 4 question, each question carries 5 marks only (5\*4=20 marks)**

2 (a)	Define materials management & the purpose of materials management?	<b>5</b>	<b>C01</b>
(b)	What are the various methods of evaluating inventory?	<b>5</b>	<b>C04</b>
(c)	Define codification & what are the various merits of codification?	<b>5</b>	<b>C01</b>
(d)	Using the following product tree, construct the appropriate single level trees. How many Ks are needed to make 100Xs & 50Ys?	<b>5</b>	<b>C03</b>
			
(e)	Differentiate between DRP & CRP?	<b>5</b>	<b>C05</b>

**SECTION-C (30 marks)**  
**Attempt any 3 question, each question carries 10 marks (10\*3=30 marks)**

3(a)	Discuss the five major levels in Manufacturing planning & control system?	10	C05
(b)	What are the various types of codification system used for materials management?	10	C01
(c)	What is SOP planning explain with diagram & what are its benefit?	10	C02
(d)	<p>A company manufactures a line of ten items. The usage and unit cost are shown in the following table, along with the annual dollar usage. The latter is obtained by multiplying the unit usage by the unit cost.</p> <p>(i). Calculate the annual dollar usage for each item.  (ii). List the items according to their annual dollar usage.  (iii). Calculate the cumulative annual dollar usage and the cumulative percentage of items.  (iv). Group items into an A, B, C classification.</p>	10	C04

**SECTION-D(30 marks)**

**Read the situation & attempt both the following questions**

4(a)	<p>Ahmed &amp; company makes variety of muffins &amp; wants to develop a production plan for them. The expected opening inventory is 200 units &amp; the company wants to reduce it to 150 units by the end of the planning period so as to serve fresh muffins. The number of working days is the same for each period. There are no back orders. The expected demands for the muffins are as follows:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Period</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th>6</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Forecast</td> <td>210</td> <td>220</td> <td>230</td> <td>220</td> <td>220</td> <td>210</td> <td>1310</td> </tr> </tbody> </table> <p>(i)How much should be produced each period?  (ii)What is the ending inventory for each period?  (iii)If the cost of carrying inventory is \$ 3 per unit per period based on ending inventory, what is the total cost of carrying inventory?  (iv)What is the total cost of the plan?</p>	Period	1	2	3	4	5	6	Total	Forecast	210	220	230	220	220	210	1310	(15)	C02
Period	1	2	3	4	5	6	Total												
Forecast	210	220	230	220	220	210	1310												
(b)	<p>An item has an annual demand of 25,000 units, a unit cost of \$10, an order preparation cost of \$10, and a carrying cost of 20%. It is ordered on the basis of an EOQ, but the supplier has offered a discount of 2% on orders of \$10,000 or more. Should the offer be accepted?</p>	(15)	C04																