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

Course: Ware House Management   **CC:LSCM 8005**
Semester: III
Programme: MBA Logistics & Supply Chain Management
Time: 03 hrs.   **Max. Marks: 100**
Instructions: Prof. Balaram Swamy J.

	SECTION A	20 Marks	

S. No.			Marks	CO
Q 1		Fill the blanks with the **most suitable** word from the **word-bank** given below.		
	a	We do not need a warehouse; because . . . . inventory is a cost. Therefore, ideally the . . . . should be restricted to barest minimum viz., ... i.e. warehouse-on-wheels between the production and consumption locations.	**1x3**	**01, 02**
	b	Warehouse location and its capacity decision is a **……..** decision, stock taking process is a **……..** decision and, picking the products as per the order is an **……..** decision.	**1x3**	**01, 02**
	c	The demand made on a Warehouse Manager is to deliver . . . . in . . . . , ... and, ...; also provide . . . . services.	**1x5**	**01, 02**
	d	Factor Rating is one of the methods of shortlisting candidate warehouse locations based on . . . . criteria. In this exercise, the . . . . or, ... on which a warehouse location need be finalized and their**.** Each one gives a . . . . number of criteria, which is then consolidated – . . . . are used for repetitive criteria. Relative frequency distribution of the criteria are the	**1x7**	**01, 02**
	e	. . . . is a mirror image of staging because in the former break-bulking is done and in the later . . . . is done.	**1x2**	**01, 02**

WORD BANK - *Please choose the word from below*

rated	Factors	criteria	weights	predetermined
operations	less-time	transit-days	value-added	storage-time
put-away	Qualitative	less-cost	less-errors	strategic
tally marks	Idle	more-orders	tactical	consolidation

SECTION B	02x20 = 40 Marks
(DO ANY TWO QUESTIONS FROM Q 02, Q 03 and Q 04)	

Q 02	Your Company has Regional Warehouses in North, East, West and South India at New Delhi, Kolkata, Pune and Bangalore; they cater to the respective markets. Hub-and-spoke method of distribution is envisaged now, and a proper city for the Nodal Warehouse is under discussion. You have been entrusted to come-up with the location for the proposed Nodal Warehouse based on Centroid or Center of Gravity method, which will be discussed further.	**20**	**CO 01 CO 03**

You are aware of the market size in terms of metric-tons, given in the table below and, you have Googled Latitude and Longitude data in degrees, given alongside in the table. Also, you searched Google and obtained the length of the Equator and Meridional Circumference of the earth as 40,030 kilo meters and 40,008 kilo meters respectively.

Calculate the Latitude and Longitude of location for the proposed Nodal Warehouse.

City	Market Size@	Latitude+	Longitude+	City	Market Size@	Latitude+	Longitude+
New Delhi	2,356	28.61	77.21	Pune	2,867	18.52	73.86
Kolkata	1,687	22.57	88.36	Bangalore	2,048	12.97	77.59

@ in Lakh Metric-tons per annum   + in Degrees

		Marks	CO
Q 03	a. Discuss Warehouse Performance Measures b. Warehouse Performance Index c. Gap Analysis d. Bench Marking	**10** **04** **03** **03**	**CO 03**
Q 04	What is Centralized and De-centralized Distribution Networks? What is risk pooling in terms of safety stock in the two modes of distribution systems ? What is Square Root Law (SRL)? and what are the assumptions ? Best Buys operates eight warehouses, each carries Rs. 2,500,000 of inventory on the average. The company wants to consolidate inventories into two warehouses. Assuming demands across the markets are negatively correlated; calculate the savings that the company would achieve ?	**2.5** **2.5** **2.5** **2.5** **10**	**CO 02** **CO 03**
	SECTION-C	**40 Marks**	
Q 05	Refer to the attached statement of question about Layout Design and answers the questions (a, b, c, d) therein	**40**	**CO 01** **CO 02** **CO 03**

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SECTION A			Marks 20	
S. No.			**Marks**	**CO**
Q 01		Fill the blanks with the **most suitable** word for a and b below from the **word-bank**		
	a	Market penetration in distribution is achieved by . . . . configuration for flow of material; where two are more . . . . are connected and each . . . . head from each . . . . becomes another . . . . , thus geographical penetration is achieved.	**1x5**	**01, 02**
	b	The demand made on a Warehouse Manager is to deliver . . . . in . . . . , ... and, ...; also provide more . . . . services.	**1x5**	**01, 02**
		Word Bank: Please choose the word from below for question 1.a and 1.b *more-orders value-added no-errors hub-and-spoke* *less-time spoke hub less-cost*		
	c	All storage spaces in a supply chain fall in one or more of the three material flow areas – Inward, Inhouse and Outward Flow. Identify the flow area in which following warehouses belong to I. WIP Store II. Spare Parts Store III. Distribution Center IV. Original Equipment Store V. Collection Center VI. Raw Material Store VII. Component Store VIII. Finished Goods Store IX. Fulfillment Center X. Local Warehouse	**1x10**	**01, 02**
SECTION B			**Marks 40**	
(DO ANY TWO QUESTIONS FROM Q 02, Q 03 and Q 04)				
Q 02		Given below is fourteen carton sizes. Calculate the maximum number of cartons, which can be placed in 1000 square feet area in a ground plus six-layer configuration.	**20**	**CO 01 CO 02**

Carton Sizes (L x W x H) in mm	
590 x 390 x 530	610 x 480 x 350
590 x 390 x 480	500 x 500 x 430
590 x 390 x 400	520 x 520 x 400
590 x 390 x 600	590 x 390 x 425
620 x 390 x 460	600 x 480 x 400
470 x 470 x 500	530 x 420 x 400
590 x 390 x 330	480 x 340 x 450

Q 03	Warehouse location decision is an iterative process of reducing the possible candidate locations. One of them is Factor Rating method. It involves identifying relevant factors, determining their relative importance and finally, to rate and rank the candidate locations – discuss the three stages Given the following factors for the location of a warehouse and their importance and, ratings for four alternate locations, rank the locations	**15** **05**	**CO 01** **CO 02**

Weights	Factors	Baddi	Pantnagar	Kanpur	Lucknow
0.20	Transportation Cost	80	100	40	90
0.15	Labour Availability	60	100	60	80
0.25	Infrastructure	60	80	80	60
0.30	Law and Order	90	70	90	60
0.10	Local Govt. Taxes	40	80	100	50

Q 04	a. What is LIFO-FIFO? b. Where are they used? c. And, corresponding Storage Systems d. Accounting System	**05** **05** **05** **05**	**CO 02** **CO 03**

SECTION-C	**Marks 40**

Q 05	Refer to the attached statement of question about Layout Design and answers the questions (a, b, c, d) therein	**40**	**CO 01** **CO 02** **CO 03**