



**PROGRAM** : B-TECH  
*ENGINEERING : INDUSTRIAL*

**SUBJECT** : LOGISTICS ENGINEERING IV

**CODE** : ILE 411

**DATE** : NOVEMBER EXAMINATION  
07 NOVEMBER 2014

**DURATION** : (SESSION 1) 08:30 - 11:30

**WEIGHT** : 40: 60

**TOTAL MARKS** : 100

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**ASSESSOR** : Mr. F. Koti

**MODERATOR** : Prof. D. Kruger

**NUMBER OF PAGES** : 4 PAGES

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**INSTRUCTIONS** : ONLY ONE POCKET CALCULATOR PER CANDIDATE  
MAY BE USED.

**REQUIREMENTS** : NONE.

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## **INSTRUCTIONS TO STUDENTS**

PLEASE ANSWER ALL QUESTIONS.

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### **QUESTION 1**

- 1.1 Coast Ltd has the option to provide shipping services for the three different types of cargo. These services will all be provided using the company's existing ships. The capacity of the company's shipping line is 1 030 000m<sup>3</sup> and a maximum of 1 220 tons of freight per week. The marginal contribution made by supplying the shipping services is as follows :

Cargo type	X (R000)	Y (R000)	Z (R000)
Contribution per unit of cargo type	15	12	17,50
Maximum demand of units per type per week	120	160	110
Space needed per unit of cargo type/m <sup>3</sup>	2000m <sup>3</sup>	1000m <sup>3</sup>	4000m <sup>3</sup>
Weight per unit of cargo type/tonnes	5t	3t	7t

**Required:**

Determine how many units of each cargo type should be shipped. (15)

[15]

### **QUESTION 2**

- 2.1 Imagine that you are an exporter of frozen fish from Walvis Bay, Namibia, to Europe. What factors would you take into account when designing packaging for the fish? (6)
- 2.2 Refill packages for the fabric softener are sometimes packaged in plastic pouches. What benefit do these pouches hold for the manufacturer, retailer and consumer ? (4)
- 2.3 Describe the difference between forward and reverse logistics. Do these differences present different challenges to the management of forward and reverse logistics? (8)

- 2.4 Discuss the most pertinent determinants of logistics performance. (5)
- 2.5 What is a close-loop supply chain and how is it informed ? (2)
- [25]

### **QUESTION 3**

- 3.1 What are some of the main reasons why strategic plans fail? How can the use of a balanced scorecard and action plans help? (6)
- 3.2 Consumer value must be defined from the customer's perspective, based on the relative importance to the customer of the various elements of perceived price, perceived total cost of acquisition and use, and perceived benefits of owning or using the goods or service. Zeithaml identifies four different perceptions of value among customers, name them and give practical examples. (4)
- 3.3 The flow of goods, services and information between the point of origin and the point of consumption or application involves twelve activities, name five and explain the significance of each. (10)
- 3.4 Discuss the process of selecting, evaluating, and choosing the right suppliers or selecting and appointing the most suitable suppliers. (5)
- 3.5 Discuss and explain through the use of a graph how the total-cost analysis is performed in the logistics process. (5)

[30]

### **QUESTION 4**

- 4.1 ABC Ltd imports computers from the UK and sells them on the local market. The details regarding the profit per computer sold are as follows:

Selling price	<b>R6000</b>
Less :	
Variable costs	<b>R4500</b>
Purchasing price	R2000
Import duties	R1000
Transport costs	R500
Selling and administration	R600
Contribution margin	<b><u>R1900</u></b>

The fixed cost of ABC Ltd for the year are as follows :

Depreciation of equipment and delivery vehicles	R150 000
Rent of premises	R180 000
Salaries	<u>R300 000</u>
	<u><b>R630 000</b></u>

ABC Ltd plans to reduce the selling price in order to increase sales. The shareholders require a profit before tax of R300 000.

**Required :**

Calculate the required sales to achieve a profit before tax of R300 000 if the selling price is reduced to R5 750 per computer. (15)

[15]

**QUESTION 5**

5.1 Identify the main tactical management objectives within a supply chain and briefly indicate what each of these objectives means. (10)

5.2 Explain the impact of inflation in Logistics. (3)

5.3 Define reverse logistics. (2)

[15]

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**TOTAL = 100**

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