



MODULE : Logistics Management 2A
CODE : LBE2A01 / LMA 12A2
DATE : 30 MAY 2017
DURATION : 180 Minutes
TOTAL MARKS : 140

EXAMINER : Dr P Kilbourn
MODERATOR : Prof J Walters
NUMBER OF PAGES : 12 Pages

INSTRUCTIONS TO CANDIDATES:

- Answer all the questions
- Use the Multiple Choice Answer sheet provided to answer section A
- Question papers must be handed in.
- This is a closed book assessment.
- Read the questions carefully and answer only what is asked.
- Number your answers clearly.
- Write neatly and legibly
- Structure your answers by using appropriate headings and sub-headings.
- The general University of Johannesburg policies, procedures and rules pertaining to written assessments apply to this assessment.

SECTION B [90 MARKS]

Please note: An interest table and formula which may apply to the questions contained in Section B is provided on page 12

QUESTION 1

(10 Marks)

Identify the range of activities that can form part of a business logistics process and explain what is meant with a total-cost or systems approach to the management of these activities (10)

QUESTION 2

(9 Marks)

Discuss a **Pull-based** supply chain system in terms of the following:

- 2.1) A description of pull-based systems (3)
- 2.2) Typical advantages of pull-based systems when compared to push-based systems (4)
- 2.3) An example of a business enterprise or industry operating a pull-based system with a short motivation why you categorise it as a pull-based system (2)

QUESTION 3

(13 Marks)

A logistics manager needs to understand the key financial concepts applying to the management of a business enterprise.

- 3.1) Explain the concept of Net Profit and what logistics managers can do to improve it (4)
- 3.2) Explain the importance of cash for a company (2)
- 3.3) Explain the concept of Free Cash Flow and how it can be improved (4)

QUESTION 4

(7 Marks)

Mhleka Technology Ltd manufactures and sells a specialized electronic product. The company owns a manufacturing plant but leases the space from where it manufactures products. Below is a recent profit calculation for Mhleka Technology Ltd for the last financial year end.

	<u>R</u>
Sales (40 000 units)	15 000 000
Less:	
Variable expenses	10 000 000
Fixed expenses	<u>2 000 000</u>
Net profit	<u>3 000 000</u>

- 4.1) Calculate the contribution margin per product (2)
- 4.2) Calculate the breakeven sales level for Mhleka Technology Ltd (2)
- 4.3) Calculate the Margin of Safety (in Rands) for Mhleka Technology Ltd (2)

- 4.4) The company is implementing new production technology which, if successful, will result in the use of smaller premises and a reduction of rental costs with R10 000 per month. What would be the impact of such a cost reduction be on the break-even point? (assume all else remain the same) (1)

QUESTION 5**(8 Marks)**

The owners of a small company (Maroela Holdings (PTY) Ltd) have approached you with an offer to buy shares in the company. Due to your training in the BCom Logistics Management at UJ you understand that you have to first determine the present value of future free cash flows and asset values in order to determine whether the price offered to you is fair. From your analysis you obtained the following information: According to the CEO of Maroela Holdings (PTY) Ltd the company expects to generate the following free cash flows over the next four years:

After 1 year: R70 000
 After 2 years: R90 000
 After 3 years: R110 000
 After 4 years: R120 000

It is also expected that the terminal asset value of Maroela Holdings (PTY) will be worth R450 000 after four years. The expected rate of return on equity is 15%. Currently there are 500 shares in the company.

- 5.1) Calculate the total present value of the expected future free cash flows (4)
 5.2) Calculate the current value of a share for the company (2)
 5.3) The price charged per share is R1 200.00. Does it represent good or poor value? Briefly motivate your answer (2)

QUESTION 6**(9 Marks)**

Underneath is the Income statement and Balance sheet for African Traders for Feb 2016. Use these statements to answer the questions that follow.

Income statement	
	R
Revenue	780 000
Less cost of goods sold	500 000
Gross Profit	280 000
Less expenses incurred	150 000
Profit before interest	130 000
Interest	50 000
Profit before tax	80 000
Tax	30 000
Profit after tax (Return on equity)	50 000

Balance sheet	
	R
Fixed assets	350 000
Current assets	100 000
Total assets	450 000
Equity	200 000
Long-term debt	150 000
Current liabilities	100 000
Equity and liabilities	450 000

- 6.1) Calculate the Net profit margin (2)
 6.2) Calculate the asset turnover (2)
 6.3) Calculate return on assets (2)
 6.4) Calculate return on equity (3)

QUESTION 7**(10 Marks)**

SA Distributors operates in the retail industry and sells various high technology products. One of the products sold by the company is an electronic measuring device by the code name HY23. The logistics manager needs to plan the inventory for this item.

7.1 What would be the most economic order quantity for HY23 given the following information (show all your calculations and base your answer on the total annual ordering costs, annual carrying costs and annual transport costs). (Formulas which you may find useful are provided on the last page of this question paper):

- Annual demand volume = 50000 units
- Unit value at cost = R1500
- Inventory carrying cost percentage = 12% annually
- Ordering costs, including handling = R450 per order
- Transport costs for quantities below 700 units = R35 per unit
- Transport costs for quantities of 700 units or more = R30 per unit (5)

7.2 Calculate the safety stock requirements for HY23, given the following information:

- Standard deviation of weekly sales = 35 units
- Standard deviation of the lead time = 0,35 weeks
- Average weekly sales = 700 units
- Average lead time = 2 weeks
- Service level requirement = 98% (5)

QUESTION 8**(10 Marks)**

Discuss the following procurement cost management strategies:

- 8.1) Speculative buying (2)
- 8.2) Forward buying (2)
- 8.3) Price-change management (2)
- 8.4) Volume contracts (2)
- 8.5) Hedging (2)

QUESTION 9**(9 Marks)**

Logistics manager Johan Pieterse needs to consider trade-offs between inventory holding costs and stock-out costs. He understands the cost of a stockout but asked for your advice as a newly recruited logistics graduate, on the costs associated with inventory holding. Fully advise Johan on inventory carrying costs and how it is calculated.

QUESTION 10**(8 Marks)**

All modes of transport can offer international services. However, the majority of goods exchanged internationally are transported by sea and by air.

- 10.1) Although airfreight rates are substantially higher than sea freight rates, air carriage does provide savings with respect to other costs. Explain this statement. (4)
 - 10.2) Discuss the main type of containers used on container ships and the advantages associated with the use of containers in international transport. (4)
-

Aid/Formulas relevant to section B:
Present Value Table

Periods (n)	Interest rates (r)									
	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	0.901	0.893	0.886	0.877	0.870	0.862	0.855	0.847	0.840	0.833
2	0.812	0.787	0.783	0.769	0.753	0.743	0.731	0.718	0.706	0.694
3	0.731	0.712	0.693	0.675	0.658	0.641	0.624	0.606	0.593	0.579
4	0.659	0.636	0.613	0.592	0.572	0.552	0.534	0.516	0.499	0.482
5	0.593	0.567	0.543	0.519	0.497	0.476	0.455	0.437	0.419	0.402
6	0.535	0.507	0.480	0.456	0.432	0.410	0.390	0.370	0.352	0.335
7	0.482	0.452	0.425	0.400	0.376	0.354	0.333	0.314	0.295	0.278
8	0.434	0.404	0.376	0.351	0.327	0.305	0.285	0.266	0.249	0.233
9	0.391	0.361	0.333	0.308	0.284	0.263	0.243	0.225	0.209	0.194
10	0.352	0.322	0.295	0.270	0.247	0.227	0.208	0.191	0.176	0.162
11	0.317	0.287	0.261	0.237	0.215	0.195	0.178	0.162	0.148	0.135
12	0.286	0.257	0.231	0.208	0.187	0.168	0.152	0.137	0.124	0.112
13	0.258	0.229	0.204	0.182	0.163	0.145	0.130	0.116	0.104	0.093
14	0.232	0.205	0.181	0.160	0.141	0.125	0.111	0.099	0.088	0.078
15	0.209	0.183	0.160	0.140	0.123	0.108	0.095	0.084	0.075	0.065
16	0.188	0.163	0.141	0.123	0.107	0.093	0.081	0.071	0.062	0.054
17	0.170	0.146	0.125	0.108	0.093	0.080	0.069	0.060	0.052	0.045
18	0.153	0.130	0.111	0.095	0.081	0.069	0.059	0.051	0.044	0.038
19	0.138	0.116	0.098	0.083	0.070	0.060	0.051	0.043	0.037	0.031
20	0.124	0.104	0.087	0.073	0.061	0.051	0.043	0.037	0.031	0.026

$$PV = FV \times [1 \div (1 + i)^n]$$

$$\sigma = \sqrt{\sum (\chi_i - \mu)^2 / n}$$

$$\sigma_c = \sqrt{TS_s^2 + D^2 S_T^2}$$

$$EOQ = \sqrt{2AS / CV}$$
