UNIVERSITY
OF
JOHANNESBURG

MODULE	:	**Logistics Management 2A**
CODE	:	**LBE2A01 / LMA 12A2**
DATE	:	**17 JULY 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 student aid supplied on the last page of this exam paper.

QUESTION 1   (16 Marks)
1.1. Explain the meaning of the concepts of logistics management and supply chain management and identify the difference between the two concepts (8)
1.2. What is meant by a systems, or total cost approach to the management of logistics? (4)
1.3. Explain the meaning of the terms "efficiency" and "effectiveness" in a logistics management context (4)

QUESTION 2   (10 Marks)
Business logistics strategy, tactics and operations can enhance the long-term wealth of a business in four areas: revenue growth, operating-cost reductions, working-capital efficiency and fixed-capital efficiency. Discuss this statement.

QUESTION 3   (13 Marks)
A logistics manager needs to understand the key financial concepts applying to the management of a business enterprise. Fully discuss the cost of equity with reference to the following:
3.1)   A definition and description of cost of equity (4)
3.2)   The Risk Free Rate (2)
3.3)   The Market Risk Premium (2)
3.4)   The Beta Factor (2)
3.5)   The capital asset pricing model (3)

QUESTION 4   (8 Marks)
In the process of calculating the current value of a company, John Khumalo identified the following budgeted future free cash flows:

After 1 year: R80 000
After 2 years: R120 000
After 3 years R140 000

4.1)   If John uses a cost of equity rate of 14%, what is the total present value of the expected future free cash flows? (4)
4.2)   John is informed that the company will have a terminal value of R500 000 in three years and currently has 1000 shares. What is the current value of a share for the company? (2)
4.3)   John is offered an opportunity to buy a limited number of shares at R550 a share. Does it represent good or poor value? Briefly motivate your answer (2)

QESTION 5   **(7 Marks)**

iAfrica Ltd imports and sells swimming pool timers for the entire Southern African market. The most recent profit calculation for iAfrica Ltd is as follows:

	R
Sales (80 000 units)	12 000 000
Less:	
Variable expenses	8 000 000
Fixed expenses	2 000 000
Net profit	2 000 000

5.1) Calculate the contribution margin per product (2)
5.2) Calculate the breakeven sales level for iAfrica (2)
5.3) Calculate the Margin of Safety (in Rands) for iAfrica (2)
5.4) If the logistics division could have managed to save R200 000 in total fixed costs for the financial year (whilst all else remain the same), what would the new breakeven point be? (1)

QUESTION 6   **(9 Marks)**

The Income statement and Balance sheet provided underneath is that of ABC Logistics for February 2016.

Income statement	R
Revenue	900 000
Less cost of goods sold	600 000
Gross Profit	300 000
Less expenses incurred	150 000
Profit before interest	150 000
Interest	50 000
Profit before tax	100 000
Tax	30 000
Profit after tax (Return on equity)	70 000

Balance sheet	R
Fixed assets	400 000
Current assets	100 000
Total assets	500 000
Equity	200 000
Long-term debt	150 000
Current liabilities	150 000
Equity and liabilities	500 000

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)**

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

7.1) Although airfreight rates are substantially higher than sea freight rates, air carriage does provide savings with respect to other costs. Explain this statement. (5)
7.2) Discuss the type of containers used on container ships and the advantages associated with the use of containers and container ships. (5)

QUESTION 8   **(10 Marks)**

Advance Technology Solutions (ATS) Ltd, a local retailer of handheld barcode scanners, sells among others, the SuperScan scanner.

8.1 What would be the most economic order quantity for SuperScan given the following information (show all your calculations and base your answer on the total of 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)

8.2 Calculate the safety stock requirements for SuperScan, 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 9   **(7 Marks)**
Although the holding of inventory in the supply chain involves numerous costs, most supply chains are overstocked. Explain **why organisations** in the various stages of a supply chain find it necessary to **hold inventory**.

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	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833
2	0.812	0.797	0.783	0.769	0.756	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	0.609	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	0.456	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	0.296	0.279
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	0.079	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	0.093	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

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

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

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

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