



<u>QUALIFICATION</u>	:	B COM (Hons)
<u>MODULE</u>	:	DEMAND PLANNING
<u>CODE</u>	:	LMA8X11
<u>DATE</u>	:	18 November 2015 EXAMINATION
<u>DURATION</u>	:	180 MINUTES
<u>TIME</u>	:	08:30
<u>TOTAL MARKS</u>	:	180

EXAMINER(S) : **Dr S Carstens**

(EXTERNAL) MODERATOR(S) : **Mr W Niemann**

NUMBER OF PAGES : **4**

INSTRUCTIONS TO CANDIDATES:

- 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.
 - Answer each section on a different answer sheet.
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ANSWER ALL THE QUESTIONS

ABC manufactures widgets at a plant in Johannesburg from where it is distributed to a national DC and warehouse network in order to supply the product to all the major retailers in South Africa. The company has been operating with this network for the past nine years. As a result of changes in the economy, the retail market and other external factors over this period, ABC was required to implement various adjustments in distribution, sales and marketing and production in order to remain competitive in the widget market in South Africa.

The widget retail market is very volatile and it is a continuous problem to ensure product availability while simultaneously minimizing the inventory investment. In addition, the retail markets in the different provinces exhibit different characteristics, further increasing the planning complexities.

The national distribution network was designed to cater for these externalities and the recent implementation of an ERP system allows for efficient management. The transport function from the plant to the DCs and from DC to warehouse is outsourced to one 3PL company based on an on-going contract.

Widget production takes place in two stages and the entire production process was designed to eliminate inefficiencies in terms of time and cost. ABC employs a total of 110 full time workers in the plant and has an agreement with a labour company to hire additional qualified workers if the need arises. Production planning is based on a rolling annual estimate which is updated every month. The company has implemented a MRP II system that allows them to minimize the inbound inventories as well. The table below shows the production rate, employee cost, hiring and layoff costs, production and inventory carrying costs. In addition, the number of full time employees and the current inventory level are shown.

Costs	Cost/unit
Production	9.6
Inventory Holding	5
Hiring	500
Layoff	750
Beginning Inventory	2500
Beginning Workforce	110
Labour Standard - month (units/worker)	50

Various suppliers are used and the contracts with these suppliers specify lead times, lot sizes and payment terms. With the implementation of the MRP II system these order characteristics had to be renegotiated.

Sales forecasting is the sole responsibility of marketing and numerous avenues have been pursued in order to increase forecasting accuracy.

The table below contains the national sales information (actual) for the past year.

Month	Sales
January	3000
February	6000
March	4000
April	2900
May	4000
June	5500
July	7500
August	6500
September	5900
October	5500
November	5800
December	5200

A specific approach that ABC has initiated is a collaborative forecasting process with the major retailers which implies that the retailers agree to share promotional, advertising and new store openings information with ABC.

To this end the following information from the retailers are available:

- A special promotional campaign by one major retail chain on the widget will be launched in February of the following year and it is expected to increase ABCs total sales for the month by 4%.
- Another retail chain plans to open two new stores in April of the following year, to increase their number of stores to 80, which is expected to increase ABCs total sales by 6.7%.
- Market analysis has indicated that a small competitor will enter the widget market in June of the following year. Indications are that the impact on ABCs sales will not be significant, but they expect an initial decrease of approximately 2.5% on the sales for the month.

QUESTION 1

[17 MARKS]

Do you think that ABC could benefit by implementing a demand planning approach? Explain the demand planning approach to the management of ABC by referring to the objectives of demand management. In addition, discuss how this may be achieved by discussing the following aspects of demand management:

- Supply and demand
- Products that are difficult to forecast

QUESTION 2

[48 MARKS]

Demand forecasting is a significant component of the approach used by ABC to remain profitable. What are the important aspects of demand forecasting and planning that ABC should take into account? (Refer to the fundamentals of demand forecasting and supply planning).

QUESTION 3**[30 MARKS]**

An important aspect of demand planning is aligning demand and supply. Explain how ABC can improve performance by describing the sales and operations planning process.

QUESTION 4**[31 MARKS]**

Do you think that ABC could further improve performance by improving coordination in the supply chain approach? Discuss the obstacles to coordination in the supply chain and describe the actions that ABCs management can take to improve supply chain coordination.

QUESTION 5**[54 MARKS]**

- a) Use the monthly sales information above to establish a monthly sales forecast for the first six months of the following year that can be used as input to the S&OP process. (14)
- b) Use the forecasts in (a) and the information from the collaborative forecasting process to develop a level production plan for ABC for the first 6 months of the following year: (24)
- c) Discuss the main differences between a level and chase production approaches. (16)

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