NOVEMBER 2012 EXAMINATION

DATE: 9 NOVEMBER 2012
TIME: 09H00 – 11H00 TOTAL: 100 MARKS
DURATION: 2 HOURS PASS MARK: 40%

(XN-88)
FORECASTING AND DEMAND MANAGEMENT

THIS EXAMINATION PAPER CONSISTS OF 3 SECTIONS:

SECTION A: CONSISTS OF:
(i) 10 MULTIPLE-CHOICE QUESTIONS (10 MARKS)
(ii) 5 TRUE OR FALSE QUESTIONS (10 MARKS)
(iii) 10 MATCHING-STATEMENT QUESTIONS (10 MARKS)

SECTION B: CONSISTS OF 3 SHORT QUESTIONS
ANSWER ALL THE QUESTIONS (50 MARKS)

SECTION C: CONSISTS OF 2 LONG ANSWER QUESTIONS
ANSWER BOTH QUESTIONS (20 MARKS)

INSTRUCTIONS:
1. Read the following instructions carefully before answering the paper, as failure to act upon them will result in a loss of marks.
2. Write your answers in your answer book, which is provided in the exam.
3. Ensure that your name and student number are clearly indicated on your answer book.
4. Write your answers in either blue or black ink in your answer book.
5. Read each question very carefully before you answer it and number your answers exactly as the questions are numbered.
6. Begin with the question for which you think you will get the best marks.
7. Note the mark allocations for each question – give enough facts to earn the marks allocated. Don't waste time by giving more information than required.
8. You are welcome to use diagrams to illustrate your answers.
9. Please write neatly – we cannot mark illegible handwriting.
10. Any student caught cheating will have his or her examination paper and notes confiscated. The College will take disciplinary measures to protect the integrity of these examinations.
11. If there is something wrong with or missing from your exam paper or your answer book, please inform your invigilator immediately. If you do not inform your invigilator about a problem, the College will not be able to rectify it afterwards, and your marks cannot be adjusted to allow for the problem.
12. This paper may be removed from the examination hall after the examination has taken place.

Examiner: A Chakabva
SECTION A

(30 MARKS)

ANSWER ALL THE QUESTIONS

(i) MULTIPLE-CHOICE QUESTIONS

Choose the correct option for each of the following. Write only the question number and your chosen answer. For instance, if you think that the correct answer for number 1 is (a), then write it as 1. (a).

1. The temperature on Tuesday was 28°, on Wednesday it was 22°, on Thursday it was 26°. What would a naive forecast for the temperature on Friday be?

   (a) 26°
   (b) 28°
   (c) 22°
   (d) 27°

2. Which of the following smoothing constants would make an exponential smoothing forecast equivalent to a naive forecast?

   (a) 0
   (b) 0,01
   (c) 0,5
   (d) 1,0

3. Conducting a sales forecast will help you:

   (a) evaluate past and current sales levels.
   (b) monitor your prices and operating costs to guarantee profits.
   (c) Only (a).
   (d) Both (a) and (b).

4. All of the following external factors can affect sales, except for:

   (a) consumer earnings.
   (b) direct and indirect competition.
   (c) seasonality of the business.
   (d) production capability shortage.

5. Long-range forecasts are used to make decisions about:

   (a) developing new products or services.
   (b) arranging long-term procurement contracts.
   (c) Neither (a) nor (b).
   (d) Both (a) and (b).
6. All of the following are qualitative forecasting techniques, except for the:
   (a) must do forecast.
   (b) nominal group technique.
   (c) naive forecast.
   (d) Delphi technique.

7. When conducting a sales forecast the following data must be prepared on a consistent basis:
   (a) accounting records
   (b) financial statements
   (c) sales-call reports
   (d) All of the above.

8. Quantitative techniques are calculated from important numbers such as:
   (a) sales volume.
   (b) gross national product.
   (c) disposable income.
   (d) All of the above.

9. A six month moving average forecast is better than a three month moving average forecast if demand:
   (a) follows a downward trend.
   (b) has been changing due to recent promotional efforts.
   (c) is rather stable.
   (d) follows an upward trend.

10. Which one of the following is not a characteristic of exponential smoothing?
    (a) smoothes random variations in the data
    (b) is an easily altered weighting scheme
    (c) weights each historical value equally
    (d) has minimum data storage requirements

(ii) TRUE OR FALSE QUESTIONS

Indicate whether the following statements are True or False. Motivate all your answers.

1. Forecasting is more or less the same as calculated guessing.

2. The simple moving average technique has a longer-term horizon compared to the regression analysis forecasting technique.

3. Aggregate demand is demand that can be broken down into specific items or categories.

4. An intermediate or medium term forecast can be used for budgetary planning, cost control, marketing new products and sales force compensation plans.
5. Time series projections, which project past sales trends into future periods, considers trend, cycle, seasonal and random factors. [5 × 2 = 10]

(iii) MATCHING-STATEMENT QUESTIONS

Match the statements in Column B to the terms in Column A. Write down the answers only, for example 1. (a).

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. material requirements planning</td>
<td>(a) has a short term horizon and low level complexity</td>
</tr>
<tr>
<td>2. moving average method</td>
<td>(b) has a long term horizon and high model complexity</td>
</tr>
<tr>
<td>3. long term decisions</td>
<td>(c) involve leasing of plant and equipment</td>
</tr>
<tr>
<td>4. medium term decisions</td>
<td>(d) involve acquisitions and mergers</td>
</tr>
<tr>
<td>5. Delphi technique</td>
<td>(e) uses recent observations</td>
</tr>
<tr>
<td>6. capacity requirements planning</td>
<td>(f) long term movement up or down in the data</td>
</tr>
<tr>
<td>7. trends patterns</td>
<td>(g) produce short-term patterns</td>
</tr>
<tr>
<td>8. seasonality patterns</td>
<td>(h) an early warning system to spot where utility problems might occur in the production</td>
</tr>
<tr>
<td>9. exponential smoothing</td>
<td>(i) determines the material requirements at different levels of the production structure</td>
</tr>
<tr>
<td>10. quantitative techniques</td>
<td>(j) are considered more objective than subjective</td>
</tr>
</tbody>
</table>

[10]

[30]
SECTION B: SHORT QUESTIONS (50 MARKS)

ANSWER ALL THE QUESTIONS

QUESTION 1
(a) List seven quantitative forecasting techniques you have learnt in this course. (7)
(b) Describe four patterns of behaviour exhibited by time series data. (8)
(c) Explain how the weighted simple moving averages method differs from the simple moving averages method. (5) [20]

QUESTION 2
(a) Identify the primary purpose of the mean absolute deviation (MAD). (2)
(b) In your opinion, what would be the fundamental difference between cycles and seasonality? (2)
(c) Explain why experts in the Delphi study are consulted separately. (2)
(d) Explain what is meant by forecasting error. (2)
(e) What are the characteristics of exponential smoothing in terms of recent and previous observations? (2) [10]

QUESTION 3
(a) Identify the steps in the forecasting process. (4 × 2 = 8)
(b) List four application areas that utilise long term range horizon when forecasting. (4)
(c) Give the functions of the marketing department regarding forecasting. (5)
(d) Give three reasons for forecasting error. (3) [20]

[50]
SECTION C: LONG ANSWER QUESTIONS

ANSWER BOTH QUESTIONS

QUESTION 1

Auto sales at Kaizer’s Car Sales are shown below. Write down the formula for moving average and develop a three-week moving average.

<table>
<thead>
<tr>
<th>Week</th>
<th>Auto Sales</th>
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<tbody>
<tr>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>6</td>
<td>13</td>
</tr>
<tr>
<td>7</td>
<td>–</td>
</tr>
</tbody>
</table>

QUESTION 2

(a) A firm uses simple exponential smoothing with $\alpha = 0.1$ to forecast demand. The forecast for the week of January 1 was 500 units whereas the actual demand turned out to be 450 units. Calculate the demand forecast for the week of January 8.

(b) From the previous records of previous orders, management of Hope City Engineering have accumulated the following data for the past ten months:

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Orders</td>
<td>120</td>
<td>90</td>
<td>100</td>
<td>75</td>
<td>110</td>
<td>50</td>
<td>75</td>
<td>130</td>
<td>110</td>
<td>90</td>
</tr>
</tbody>
</table>

i. Explain the naïve method.

ii. Calculate the monthly demand forecast for February through April using the naïve method.