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**University Examinations 2015/2016**

FOURTH YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF COMMERCE

**BFC 3431: FINANCIAL MODELLING AND FORECASTING**

**DATE: AUGUST 2016 TIME: 2HOURS**

**INSTRUCTIONS:** *Answer question* ***one*** *and any other* ***two*** *questions*

**QUESTION ONE (30 MARKS)**

1. Explain the two basic reasons for forecasting in the business field. (4 Marks)
2. Discuss the main steps used in forecasting process. (6 Marks)
3. Discuss the following techniques used in forecasting:
4. Grass root. (3 Marks)
5. Market research. (3 Marks)
6. Historical Analogy (3 Marks)
7. Delphi Method (3 Marks)
8. The following information relates to the demand data for 8 years. Use these data for forecasting the demand for the year 2016 using the three naïve methods described earlier.

Year Actual sales

2007 200

2008 205

2009 203

2010 207

2011 209

2012 220

2013 225

2014 227 (8 Marks)

**QUESTION TWO (20 MARKS)**

Using the following information relates to the demand for a particular product for the period 2000 to 2008

Year: 2000 2001 2002 2003 2004 2005 2006 2007

Demand: 300 215 343 457 219 220 215 237 214

1. Calculate a three year moving average. (10 Marks)
2. Discuss the characteristics and merits of moving averages. (10 Marks)

**QUESTION THREE (20 MARKS)**

Demand for a BCOM programme at Meru University has increased steadily in the past few years, as shown in the following table

Year 1 2 3 4 5 6

No. of students 45 50 52 56 58

The CoD of the programme predicted six years ago that demand in year 1 would be 42 students.

Required:

1. Using exponential smoothing with a weight  develop forecasts for years 2 through 6.

(10 Marks)

1. Explain the term MAD. (10 Marks)

**QUESTION FOUR (20 MARKS)**

The following information relates to the sales of a particular item in the 12 time periods.

Time period (T):1 2 3 4 5 6 7 8 9 10 11 12 13

Demand (D) 28 27 33 25 34 33 35 30 33 35 27 29

The manager wants to forecast 1 time period ahead in order to plan properly. Determine the forecast using:

1. Naïve method (4 Marks)
2. 3 period moving average (4 Marks)
3. Simple exponential smoothing taking  (6 Marks)
4. Compute the following errors MAD, MAPE and MSE. (6 Marks)

**QUESTION FIVE (20 MARKS)**

1. Room registrations in the Park Hotel have been recorded for the past nine years. Management would like to determine the mathematical trend of guest registration in order to project future occupancy. This estimate would help the hotel determine whether a future expansion will be needed. Given the following time series data, develop a regression equation relating registrations to time. Room registrations are in thousands. (10 Marks)

Years 1 2 3 4 5 6 7 8 9

Number of registration 17 16 16 21 20 20 23 25 24

1. Discuss the qualitative methods of forecasting (10 Marks)