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**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

**FINAL EXAMINATION  
SEMESTER II  
SESSION 2014/2015**

COURSE NAME : ENGINEERING MANAGEMENT  
COURSE CODE : BEE 30103  
PROGRAMME : BACHELOR OF ELECTRICAL  
ENGINEERING WITH HONOURS  
AND BACHELOR OF ELECTRONIC  
ENGINEERING WITH HONOURS  
EXAMINATION DATE : JUNE 2015 / JULY 2015  
DURATION : 3 HOURS  
INSTRUCTION : ANSWER **ALL** QUESTIONS

THIS QUESTION PAPER CONSISTS OF **FOUR (4)** PAGES

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- Q1** (a) Define engineering management according to Institute of Electrical and Electronics Engineers (IEEE) (2 marks)
- (b) Describe a SWOT analysis (6 marks)
- (c) Explain the **FOUR (4)** functions of engineering management (12 marks)
- Q2** (a) List the **THREE (3)** types of computer-based information systems (3 marks)
- (b) Briefly explain the following forecasting methods: (3 marks)
- (i) Times Series
  - (ii) Regression Methods
  - (iii) Qualitative Methods
- (c) Explain the process of effective decision-making (14 marks)
- Q3** (a) Define maintenance management (4 marks)
- (b) Define Total Quality Management (TQM) as an organization's culture (4 marks)
- (c) Explain with an example, the **FOUR (4)** types of Quality Costs (12 marks)
- Q4** The engineering managers are distinguished from other managers because they possess both an ability to apply engineering principles and a skill in organizing. Despite of their capabilities in technical functions, broader functions in management are their unique qualification for two types' jobs. However, there are some challengers and expectations to the engineers in management. Kindly discuss:
- (a) The **THREE (3)** challengers with relevant examples (10 marks)
- (b) The **FIVE (5)** expectations to the engineers (10 marks)

**Q5** The automobile traders has observed the sales by months for the year 2014 as per table **Q5 (a)**:

**TABLE Q5 (a)**

x (period)	y (demand )
1	50,273
2	50,218
3	58,919
4	58,732
5	55,939
6	58,561
7	60,267
8	51,125
9	47,771
10	54,187
11	55,313
12	64,660

- (a) Find the equation using the Time Series Methods of linear trend line  $y = a + bx$  (12 marks)
- (b) Find the forecast demand using equation in (a) for period of 13 & 14 (2 marks)
- (c) Calculate the seasonally adjusted forecasts from the equation **Q5 (a)** using the sales volumes in each quarter from year 2012 to 2013 as per table **Q5 (c)**:

**TABLE Q5 (c)**

	1 <sup>st</sup> Q	2 <sup>nd</sup> Q	3 <sup>rd</sup> Q	4 <sup>th</sup> Q	Total
<b>2012</b>	138,544	162,725	157,202	169,282	627,753
<b>2013</b>	158,734	155,703	174,482	167,823	656,742
<b>2014</b>	159,410	173,232	159,163	174,160	665,965

(6 marks)

- **END OF QUESTIONS** -

**FINAL EXAMINATION**

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PROGRAMME: BEJ/BEV  
COURSE CODE: BEE 30103

**LIST OF FORMULA**

1.  $\bar{x} = \sum x / n$
2.  $\bar{y} = \sum y / n$
3.  $a = \bar{y} - b\bar{x}$
4.  $b = \frac{\sum xy - n\bar{x}\bar{y}}{\sum x^2 - n\bar{x}^2}$
5.  $S = D / \hat{a}D$