UTHM
Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER I
SESSION 2013/2014

COURSE NAME : QUANTITATIVE TECHIQUES FOR REAL ESTATE

COURSE CODE : BPE 44303

PROGRAMME : 4 BPD

EXAMINATION DATE : DECEMBER 2013 / JANUARIY 2014

DURATION : 3 HOURS

INSTRUCTION : ANSWER **ALL** QUESTIONS

THIS QUESTION PAPER CONSISTS OF **THREE (3)** PAGES

Q1   T-test is known as comparative analysis in statistical analysis. It application mainly to test differences in means between two groups or variables.

(a)   Discuss the differences between one-sample t-test, paired sample t-test and independent sample t-test

(10 marks)

(b)   By referring to the following statements, determine the appropriate comparative test and justify your answer.

(i)   In recent budget presentation, the government has announced that the Real Property Gain Tax (RPGT) will be increased to a maximum of 30 per cent.

Explain the appropriate approach in order to test the effectiveness of such policy.

(7.5 marks)

(ii)   Prior studies have shown that firm size, as measured by market capitalization, did significantly affect firm's profit. Nevertheless, there are also other findings that stated otherwise.

Explain the steps that should be taken in order to test the theory.

(7.5 marks)

Q2   In the linear consumption function

$$\widehat{cons} = \widehat{\beta_0} + \widehat{\beta_1} inc,$$

The estimated marginal prospesity to consume (MPC) out of income is simply the slope, $\widehat{\beta_1}$, while the average prospensity to consume (APC) is $\widehat{cons}/inc = \widehat{\beta_0}/inc + \widehat{\beta_1}$. Using observation for 100 families on annual income and consumption (both measured in ringgit), the following equation is obtained:

$$\widehat{cons} = -124.84 + 0.853 \, inc$$
$$n = 100, R^2 = 0.692$$

(a)   By considering the sign and its magnitude, interpret the intercept in this equation.

(12 marks)

(b)   Compute the predicted consumption when family income is RM30,000.

(5 marks)

(c)   With *inc* on the *x*-axis, draw a graph of the estimated MPC and APC.

(8 marks)

Q3 In order to evaluate the effect of various firm-specific factors on the returns of a sample of 200 firms, a regression model is estimate in the form as the following:

$$r_i = \beta_0 + \beta_1 S_i + \beta_2 MB_i + \beta_3 PE_i + \beta_4 BETA_i + u_i$$

Where: r_i is the percentage annual return for the stock
S_i is the size of firm i measured in term of sales revenue.
MB_i is the market to book ratio of the firm
PE_i is the price/earning (P/E) ratio of the firm
$BETA_i$ is the stock's CAPM beta coefficient

The following is the findings based on the above model (with standard errors in parentheses)

$$\hat{r}_i = 0.080 + 0.801 S_i + 0.321 MB_i + 0.164 PE_i + 0.084 BETA_i$$
$$(0.064) \quad (0.147) \quad (0.136) \quad (0.420) \quad (0.120)$$

Assuming that critical value for t-statistic at 5 per cent level of significant is 1.645, provide detail analysis that evaluate the outcome of the model

(25 marks)

Q4 A common specification in applied work has the dependent variable appearing in logarithmic form, with one or more dummy variables appearing as independent variables. The following equation is fitted to show how dummy variable is included in a regression model (with standard errors in parentheses):

$$\log \widehat{Price} = 5.56 + 0.68 \log lotsize + 0.707 \log buildup + 0.027 bdrms + 0.054 design$$
$$(0.65) \quad (0.038) \qquad (0.093) \qquad (0.029) \qquad (0.045)$$

Where:
log$Price$ is the transaction price of a house, in log natural.
log$lotsize$ is the land size where the building is erected, in log natural.
log$buildup$ is the total build-up size of the building, in log natural.
$bdrms$ is total number of bedroom in the house.
$design$ of a building where 1 is a house with colonial style and 0 otherwise.

Assume that the critical value for t-statistic at 5 per cent level of significant is 1.645.

(a) Discuss the outcome of the estimated model.

(15 marks)

(b) While holding other factors fixed, analyze the effect of *design* on log*Price*.

(10 marks)

-END OF QUESTION-