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Program/Course	:	**MBA-GENERAL**					
Semester	:	**IV**					
Name of the Subject	:	**Financial Econometrics**					
Subject Code	:	**MBCF863**					
Name of Question Paper Setter	:	**Dr. Sushil Kumar Rai**					
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UPES

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, April 2018

Program/course: MBA-General (Finance) | **Semester – IV**
Subject: Financial Econometrics | **Max. Marks : 100**
Code : MBCF863 | **Duration : 3 Hrs**
No. of page/s: 5

Section-A

All the questions are compulsory in this section. [10*2=20]

1. In a regression analysis we are concerned with the study of-

   (a) mean value of X population.

   (b) mean value of Y population.

   (c) dependence of Y variable on one or more explanatory variables.

   (d) interdependence of X and Y variables.

2. In the simple linear regression model, the regression slope-

   (a) indicates by how many percent Y increases, given a one percent increase in X.

   (b) when multiplied with the explanatory variable will give you the predicted Y.

   (c) indicates by how many units Y increases, given a one unit increase in X.

   (d) represents the elasticity of Y on X.

3. The fitted regression equation is given by Y = -12 + 0.5X. What is the value of residual at the point X = 50, Y = 70 ?

   (a) 57.

   (b) -57 .

   (c) 0.

   (d) 33.

4. The Jarque –Bera test is-

   (a) model specification test.

   (b) residual normality test.

   (c) test of unbiasedness of estimators.

   (d) test of goodness of fit for the model.

5. When our findings is statistically significant it means-
   (a) the ‘t’ value and ‘p’ value are not equal.
   (b) standard error is very high.
   (c) the estimated value is significantly different from the hypothesized value.
   (d) the estimated value is not significantly different from the hypothesized value.
6. Heteroscedasticity means that-
   (a) all variables cannot be assumed to be homogeneous.
   (b) the variance of the error term is not constant.
   (c) the observed units have no relation.
   (d) the X and Y are not correlated.
7. A non-stationary time series is one with-
   (a) time-varying mean.
   (b) time-varying variance.
   (c) both (a) and (b).
   (d) time invariant mean and variance.
8. A non-stationary series that becomes stationary on first differencing is-
   (a) integrated of order 0.
   (b) integrated of order 1.
   (c) integrated of order 2.
   (d) integrated of order 3.
9. Testing for cointegration is given by-
   (a) Dickey-Fuller test.
   (b) Engle-Granger test.
   (c) Error Correction Mechanism.
   (d) F-test.
10. Multicollinearity can be detected if the regression function has-
   (a) high R^2 with all coefficients having t-ratios.
   (b) may not have high R^2 but all coefficients have high t-ratios.
   (c) high R^2 with very few or no coefficients having high t-ratios.
   (d) low R^2 with almost all coefficients having low t-ratios.

Section-B [4*5=20]

Attempt all the questions.

11. Suppose you were to develop a financial econometric model on return of a bond. What variables would you consider in developing such a model and why?
12. Why do youn need regression analysis? Why not simple use the mean value of the regression as its best value?
13. What is the role of stochastic error term u_i in regression analysis? What is the difference between the stochastic error term and the residual, $\check{u}_i$?
14. What is the error correction mechanism (ECM)? What is its relation with cointegration?

Section-C [2*15=30]

Attempt all the questions.

15. The following regression results were obtained between nominal exchange rate and relative prices for the period from 1980 to 1994-

$$\check{Y}_t = 6.682 - 4.318X_t \text{ , } R^2 = 0.528$$

$$\text{Se} = (1.22) \quad (1.33)$$

Where Y = exchange rate of the Indian rupees to the US Dollar and X = ratio of US consumer price index to the Indian consumer price index.

a) Interpret this regression. How would you interpret R^2 ?
b) Does the negative value of X_t make economic sense? What is the underlying economic theory?
c) Calculate t-value for coefficient of X_t and find whether is it significant at 5% or not.

16. For a sample of 210 firms, a research firm obtained the following regression results

$$\text{Log(salary)} = 4.32 + 0.280\text{log(sales)} + 0.0174\text{roe} + 0.00024\text{ros}$$

$$\text{Se} = (0.32) \quad (0.035) \quad (0.0041) \quad (0.00054), \quad R^2 = 0.283$$

Where salary = salary of CEO, sales = annual firm sales, roe = return on equity in percent, ros = return on firm's stock and figures in the parentheses are thw estimated errors.

a) Interpret the preceding regression results.

b) Which of the coefficient are individually statistically significant at the 5 percent level?

c) Can you interpret the coefficients of 'roe' and 'ros' as elasticity coefficient? Why or why not?

Section-D **[1*30=30]**

Attempt the given question.

17. From the data for the period 1971-I to 1988-IV quarter for India, the following regression results were obtained-

I. $InM1_t = -10.2571 + 1.5975InGDP_t$

$t = (-12.9422)\ \ (25.8865),\quad R^2 = 0.9463,\ d = 0.3265$

II. $\Delta InM1_t = 0.0095 + 0.5833\Delta\ InGDP_t$

$t = (2.4957)\ \ (1.8958),\quad R^2 = 0.0885,\ d = 1.7399$

III. $\Delta\breve{u}_t = 0.1958\breve{u}_{t-1}$

$t = (-2.2521),\ R^2 = 0.1118,\ d = 1.4767$

Where M1 = money supply, GDP = gross domestic product, In = natural log and $\breve{u}_{t-1}$ = the estimated residuals from regression I.

a) Interpret regression I and II.

b) Do you suspect that regression I is spurious? Why?

c) Is regression II spurious? How do you know?

d) From the result of regression III, would you change your conclusion in 'b'? why?

e) Now consider the following regression:

$$\Delta InM1_t = 0.0084 + 0.7340\Delta\ InGDP_t - 0.0811\breve{u}_{t-1}$$

$$t = (2.0496)\ \ (2.0636)\qquad (-0.8537),\quad R^2 = 0.1066,\ d = 1.6697$$

What does this regression tell you? Does this help you to decide if regression I is spurious or not?