

Register No.: Name:

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

FIRST SEMESTER PhD EXAMINATION (Regular), FEBRUARY 2022**(MBA 2020 Scheme Semester III)****Course Code : 20MBA513****Course Name: Econometrics****Max. Marks : 60****Duration: 3 Hours**

*Scientific Calculators are allowed for the examinations
 Programmable calculator or other computing devices will not be permitted
 Logbooks will be provided for the examination*

PART A*(Answer all questions. Each question carries 2 marks)*

1. What is multicollinearity?
2. What is White's test?
3. What is spurious regression?
4. What is a panel data?
5. Define White Noise.

PART B*(Answer any 3 questions. Each question carries 10 marks)*

6. A researcher obtained the following ordinary least squares (OLS) estimates for a UK firm's stock price using 120 observations from 1980 m1 to 1989m12 (All variables in logarithms):

$$\ln s_t = 0.87 - 0.54 \ln p_t + 0.65 \ln y_t + 0.34 \ln r_t - 0.32 \ln m_t$$

(1.06) (0.24) (0.30) (0.12) (0.24)

$$\bar{R}^2 = 0.34, \text{RSS} = 1.24, F_{115}^4 = 3.75$$

s_t are the log of the stock price, p_t is the log of profits, y_t is the log of its output in the UK, r_t is the log of expenditure on research and development and m_t is the log of expenditure on Marketing. Figures in parentheses are standard errors and RSS is the Residual Sum of Squares.

- i) Briefly evaluate the reasons behind including the above explanatory variables in the regression. (2 marks)
- ii) What is the explanatory power of the regression? (1 marks)
- iii) Individually using the t-test, test whether each coefficient equals 0, at the 5% level of significance (5 marks)
- iv) Using a t-test does the coefficient on the variable $\ln y_t = 1$? (2 marks)

7. Explain Cochrane – Orcutt iterative estimation procedure used in the presence of autocorrelated disturbance
(10 Marks)

8. Distinguish between Intercept Dummy variable and Slope Dummy variable by giving an example for each
(4 Marks)

To study the day of the week anomaly, develop a procedure to test if the day of the week influences equity returns
(6 Marks)

9. Explain why the linear probability model is inadequate as a specification for limited dependent variable estimation
[5 Marks]

Compare and contrast the Logit and Probit specification for binary choice variables
(5 Marks)

10. The following estimates are obtained for an AR (2) process model for some data involving stock returns

$$y_t = 0.803y_{t-1} + 0.682y_{t-2} + u_t$$

Where, u_t is a white noise error process. By examining the characteristic equation, check the estimated model for stationarity

(5 Marks)

List any three features of financial data that cannot be explained using linear time series models

(5 Marks)

PART C

(Compulsory question, the question carries 20 marks)

11. Answer all sub sections
Explain the Durbin – Watson test to test for auto correlation
(6 Marks)

Define the exponentially weighted moving average time series forecasting approach and give examples of commonly used versions of this model.
(10 Marks)

Which of the disadvantage of ARCH are overcome by GARCH?
(4 marks)
