STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI – 86
(For candidates admitted from the academic year 2008-2009)

SUBJECT CODE: EC/ME/EM44

B. A. DEGREE EXAMINATION, APRIL 2010
BRANCH IV - ECONOMICS
FOURTH SEMESTER

COURSE   : MAJOR ELECTIVE
PAPER   : BASIC ECONOMETRICS
TIME   : 3 HOURS.   MAX. MARKS: 100

SECTION – A
ANSWER ALL QUESTIONS. EACH ANSWER NOT TO EXCEED 50 WORDS.
(10 X 3 = 30)

1. Define 'Econometrics'.
2. What is the difference between Population Regression function and Sample regression function?
3. Interpret the result :
   Expenditure of Health care per month   = 135 + 0.06 (monthly income).
   $R^2 = 0.38$ t (3.49)
4. What do you mean by heteroscedasticity ?
5. Why do we minimize $\sum e_i^2$ instead of $\sum e_i$ to have best estimators ?
6. Can Adjusted R^2 be negative ?.
7. Write down the formule for estimating the intercept and slope
   coefficients of the two variable regression model $Y_i = \alpha + \beta X_i + U_i$
8. What is the difference between Double Log model and Semi Log model?
9. Define simultaneous equation system with suitable examples.
10. How do we test the significance of an independent variable?

SECTION – B
ANSWER ANY FIVE QUESTIONS. EACH ANSWER NOT TO EXCEED 300
WORDS.   **(5 X 6 = 30)**

11. What is the need for introducing error term in an econometric model?
12. Explain the assumptions of Classical Linear Regression Model.
13. Prove that OLS estimators ($\hat{\alpha}$ and $\hat{\beta}$) for a Two – Variable regression model
    $Y_i = \alpha + \beta X_i + u_i$ are Linear and unbiased.
14. Derive R^2 and explain its properties.
15. The following table brings the information about the number of SMSs sent
    per day (Y) and study hours per day (X)

SMSs sent per day (Y)	18	12	10	8	7	5
study hours per day (X)	2	4	5	6	8	11

    Estimate the regression equation $Y_i = \alpha + \beta X_i + u_i$ and prove that
    $\sum e_i^2$ is minimum .
16. Explain the dummy variable model to estimate 'differential intercept' as well as
    differential slope' between two groups.
17. What is simultaneous equation bias?

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SECTION – C
ANSWER ANY TWO QUESTIONS. EACH ANSWER NOT TO EXCEED 1200
WORDS.   **(2 X 20 = 40)**

18. Explain in detail the methodology of Econometric analysis with a well known economic theory.

19. Derive the variance for OLS estimators $\hat{\alpha}$ and $\hat{\beta}$ of a Two – Variable regression model $Y_i = \alpha + \beta X_i + u_i$ and prove that they are the minimum.

20. Given the following data (in thousand rupees)

Consumption	71	75	69	97	70	91	39	61	80	47
Income	91	97	108	121	67	124	51	73	111	57

Estimate the consumption function and test the significance. Also find out the co-efficient of determination (R^2) .

21. How do we estimate (a) the compound growth rate of a time series variable and (b) the elasticity of output with respect to capital and Labour in a production function .

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