Total No. of Questions—4]

Seat
No.

[5104]-304

M.A. (Part II) (Third Semester) EXAMINATION, 2017

ECONOMICS

EC-303 (B) : Econometrics

(2008 PATTERN)

Time : Three Hours   **Maximum Marks : 80**

N.B. :— (*i*) Attempt *All* questions.

(*ii*) Figures to the right indicate full marks.

(*iii*) Answer should be precise and to the point.

(*iv*) Use of calculator is allowed.

1. Answer any *one* of the following questions :   [20]

(*i*) The annual sales of a domestic food mixer of a company are
as follows :

Year	Sale (in th.)
1	80
2	90
3	92
4	83
5	94
6	99
7	92

(a) Determine the best line of fit of the form $Y = \alpha + \beta X$ and forecast the demand for the 8th and 9th year.

(b) Test the significance of β at 5% level of significance, given that $t_{(5,\ 0.05)} = 2.571$.

(c) Construct 95% confidence interval for β.

(ii) Check whether all the coefficients in the following demand and supply model are identified :

$$q_t = \alpha_0 + \alpha_1 p_t + \alpha_2 y_t + \omega_t \text{ (demand function)}$$
$$q_t = \beta_0 + \beta_1 p_t + \eta_t \text{ (supply function)}$$

Where the disturbances ω_t and η_t are uncorrelated, y_t (consumer income) is an exogenous variable.

2. Answer any *one* of the following questions :   [20]

(i) Fit a curve of the type $Y = a.b^X$ to the following data using least square principle :

Year (X)	Profit (Y)
	(lac. Rs.)
0	32
1	47
2	65
3	92
4	132

(ii) What is heteroscedasticity ? Explain reasons of heteroscedasticity. Also explain different methods of detection of heteroscedasticity.

3. Answer any *two* of the following questions : [20]

   (*i*) What is Econometrics ? Explain the methodology of Econometric Research.

   (*ii*) Explain how interaction effect can be studied using dummy variables.

   (*iii*) State and explain order and rank conditions of identifiability of equations in simultaneous equations model.

   (*iv*) State and explain features of Logit model.

4. Answer any *four* of the following questions : [20]

   (*i*) State Gauss-Markov Theorem. Also state the relations of Best Linear Unbiased Estimators (BLUE) of the constants in the linear regression model.

   (*ii*) State different models used in time series analysis.

   (*iii*) State sources of autocorrelation. Also explain how parameters of the model are estimated in presence of autocorrelation.

   (*iv*) What is economic forecasting ? Discuss any *two* approaches to economic forecasting.

   (*v*) Explain different methods of detection of multicollinearity.

   (*vi*) Explain how dummy variable can be used in piecewise linear regression model.