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37 (Sem–4) ECO 4.3 (A/B)

2015

ECONOMICS

Paper : 4.3

Full Marks : 80

Time : 3 hours

The figures in the margin indicate full marks for the questions

GROUP—A

(Population and Human Resource Development)

1. Answer the following within *50* words each : 2×4=8

(a) State the Malthusian theory of population.

(b) Define 'vital statistics' and name the various measures which make up the 'vital statistics'.

(c) State what you understand by 'cost-benefit analysis of education'.

(d) What is 'brain drain'?

2. Answer any *three* of the following within *300* words each : 8×3=24

(a) Give a description of the demographic characteristics of India as per the latest census.

(b) State and explain the various measures of mortality.

(c) Describe 'structure' and 'usefulness' of life tables.

(d) Discuss the concept of 'Social Rate of Return to Investment in Education' highlighting the difficulties in measuring the same.

(e) How is manpower demand estimated? Discuss.

3. Answer any *three* of the following within *750* words each : 16×3=48

(a) Give a critical appraisal of the theory of demographic transition.

(b) Discuss the trend in the age structure of the population of India stating the opportunities and challenges India is facing due to the changing age structure of the population.

(c) Give a critical appraisal of the 'theory of intergenerational wealth flow'.

(d) Discuss the prospects and consequences of the entry of the private sector into the higher education sector in India.

(e) What causes brain drain from less developed countries? Discuss and suggest remedies.

GROUP—B

(Econometric Methods)

1. Answer the following questions : 2×4=8

(a) State the Gauss-Markov theorem and Aitkin's generalization of the same.

(b) When does a dependent variable become binary?

(c) Distinguish between seasonal variations and cyclical variations in a time series.

(d) Why is indirect least square method unsuitable for estimating an over-identified equation?

2. Answer any *three* of the following questions : 8×3=24

(a) Illustrate with an example the identification problem in a simultaneous equation model. 8

(b) Explain the idea of a stochastic time series. Given that $Y_t = 0 \cdot 6Y_{t-1} + u_t$, where u_t is a white noise, derive the autocorrelation function of the time series, and draw the correlogram. 2+4+2=8

(c) When is it necessary to use non-linear least square method instead of the ordinary least square method? Give an outline of the NLLS method. 2+6=8

(d) What is heteroscedasticity and how does it affect the OLS estimators? Outline a procedure for testing for the presence of heteroscedasticity. 4+4=8

(e) The dependent variable Y depends on the expected level of X but not the realized level of X. Making suitable assumption, formulate an appropriate model for estimating the relation. 8

3. Answer any *three* of the following questions : 16×3=48

(a) In the linear regression model

$$Y_t = \alpha + \beta X_t + u_t$$

u_t has been suspected to have first-order autoregression. Explain how you will test for the presence of autoregression. If autoregression is confirmed, outline a feasible GLS procedure to estimate the model. 8+8=16

(b) Explain how moving average and filling of mathematical curves can be used for estimating the trend of a time series. Discuss the relative merits and demerits of the two techniques. 6+6+4=16

(c) Explain how the LOGIT model can be used for analyzing a qualitative choice process. Indicate how the model can be estimated. 10+6=16

(d) Define mean lag and median lag and derive the same for the Koyck lag structure. Discuss a method of estimating the Koyck model. 6+10=16

(e) Define a simultaneous equation model and describe its different forms. Using a suitable example, show that estimating equations of an SEM as independent equations can lead to biased and inconsistent estimation. 6+10=16

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