Name of the Programme: M A Economics (Sem. IV)

Name of the Course: EC- 2 Group H: Time Series Econometrics

Model Questions (Short and Long Answer Type)

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Model Set of Short and Long Answer Type Questions

(A) Short Answer Type Questions

Module 1

1. **Distinguish between Time series and Cross section data with the help of suitable examples.**
2. **Describe the Additive and Multiplicative models of Time series analysis.**
3. **From the following data, determine trend by Semi-average Method –**

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Sales (000 Rs.)	20	24	19	21	26	22	25	26	22	30	27

4. **Define Time Series and give a suitable example of time series data.**

Module 2

5. **Define Serial correlation.**
6. **Write a short note on Method of Least Squares.**
7. **What do you mean by non-linear model? Give any two examples of non-linear model.**
8. **Describe the causes of autocorrelation in a time series.**

Module 3

9. **Distinguish between stationary and non- stationary series.**
10. **Define a unit root stochastic process.**
11. **What do you mean by White Noise Error?**

Module 4

12. What is Augmented Dickey-Fuller (ADF) test?

Module 5

13. Explain the co-integration test procedure.

Module 6

14. Write a short note on Autoregressive (AR) Process.
15. Write a short note on Moving Average (MA) Process.
16. Write a short note on Vector Auto-regression.

(B) Long Answer Type Questions

Module 1

1. What do you mean by Time Series? Describe various components of time series?
2. Given below are the figures of production of a commodity (in lakh of units) for four years. Compute seasonal variation indices by the Method of Simple Average:

Year	Quarters			
	1st	2nd	3rd	4th
2010	37	41	33	35
2011	37	39	36	36
2012	40	41	33	31
2013	33	44	40	40

3. The sales of a company in million of rupees for the years 2007 to 2013 are given below. Find the trend using an equation of the form $Y = ab^X$.

Year	2007	2008	2009	2010	2011	2012	2013
Sales (Y)	32	47	65	92	132	190	275

Note: Logarithmic and Antilogarithmic Tables are required to solve the problem.

4. Estimate the equation: $Y = a + \frac{b}{X}$ for the following time-series data:

Year(X)	1991	1992	1993	1994	1995
Production of Steel(Y) (in ton)	4	5	8	10	10

Module 2

5. Compute Durbin-Watson d-statistic and interpret the result for the data given below:

Time (t)	1	2	3	4	5	6	7	8	9	10
e_t	- 0.6	0.43	0.12	- 0.22	- 0.50	0.25	- 1.31	- 0.24	- 0.43	1.07

(At 5% level of significance $d_L = 0.9$ and $d_U = 1.65$)

6. Fit a straight line for the following series and estimate the production for 2009:

Year	2001	2002	2003	2004	2005	2006
Production of Steel (in ton)	5	15	14	17	18	9

7. Define autocorrelation in a time series and describe the method of detecting presence of autocorrelation.

Module 3

8. Explain random walk models without and with drift.
9. Describe methods of transforming non-stationary process into stationary process.

Module 4

10. Describe Dickey-Fuller and Augmented Dickey-Fuller Tests.
11. Describe the Unit Root Test procedure.

Module 5

12. Describe the Co-integration Model.

Module 6

13. Define AR, MA and ARMA processes.
14. What is Vector Auto-regression (VAR)? Discuss estimation and problems of VAR modeling.

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