SRN – 05

M.Com. (Semester – II) Examination, April 2017
COC205 : BUSINESS STATISTICS AND ECONOMETRICS FOR MANAGERS (OA – 18)

Duration : 3 Hours | Max. Marks : 60

Instructions : *1) This paper consists of **nine** questions carrying **equal** marks.*
*2) Question No. **1** consists of **5 compulsory** questions of **2** marks **each**.*
*3) Answer **any 5** questions from Question **2, 3, 4, 5, 6, 7, 8** and **9**.*
*4) **Each** question carries **10** marks. Figures to the **right** indicate marks.*

1. Answer the following short questions in brief : **(5×2=10)**
   a) What do you understand by One-tail and Two-tail test ?
   b) State any two causes of presence of autocorrelation in regression models.
   c) What is meant by discriminant analysis ?
   d) Calculate T^+ and T^- from the following data, having H_0 = Median = 10.
      15 12 9 10 18 7
   e) What is Coefficient of Determination (R^2) ?

2. a) Distinguish between regression and correlation. **3**
   b) A random sample of size 16 has mean 53. The sum of the squares of the deviations taken from mean is 135. Can this sample be regarded as taken from the population having 56 as mean ? **7**

3. What are non-parametric tests ? Discuss the limitations of non-parametric tests. **10**

4. a) Mention the null and alternative hypothesis of one-way ANOVA test. **2**
   b) Outline the steps in carrying out analysis of variance of a two way classified data with a suitable example. **8**

5. Discuss the traditional econometric methodology with suitable example. **10**

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6. Calculate seasonal indices by the ratio to moving average method from the following data of the sales of a firm in lakhs of rupees : 10

Year	Quarter I	Quarter II	Quarter III	Quarter IV
2002	68	62	61	63
2003	65	58	66	61
2004	68	63	63	67

7. A Male-order Company has the following sample data on sales separated according to how the order was paid. Test the hypothesis that there is no difference in the rupee amount of orders paid for by cash, by cheque, or by credit card. Use the Kruskal-Wallis Test with a level of significance of 5 percent. 10

Credit Card Order	78	64	75	45	82	69	60
Cheque Order	110	70	53	51	61	68	–
Cash Order	90	68	54	74	65	70	59

8. A company is considering two different television advertisements for promotion of a new product. Management believes that Advertisement A is used in one region and Advertisement B in the other region. In a random sample of 60 customers who saw Advertisement A, 18 had tried the product. In a random sample of 100 customers who saw Advertisement B, 22 had tried the product. Does this indicate that Advertisement A is more effective than Advertisement B, if 5% level of significance is used ? 10

9. a) Explain the causes and consequences of presence of heteroscedasticity in regression models. 5

   b) In a study of dependence output (Y_i) on labour input (X_1) and capital input (X_2) sampling across 20 industries, the following results were obtained :

Variable	Coefficient	Std. Error	T value	P value
Intercept	0.5292	0.2712	1.9511	0.0677
Labour Input (X_1)	0.1810	0.1412	1.2814	0.2173
Capital Input (X_2)	0.8827	0.0708	12.4658	0.0000
R-Square = 0.9942			N = 20	
F-stat = 211.0972			P-Value (F-stat)	0.0000
Whites test-stat = 4.74			Prob(White =0.031	

   Identify the nature of problem in the model and interpret the result. 5
