M.Com. (Semester – II) Examination, November 2017
COC 205 N : 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 power of test ?
   b) Give two points of distinction between regression and causation.
   c) What is meant by factor analysis ?
   d) State any four remedial measures to correct the problem of multicollinearity.
   e) Why is chi-square a test of goodness of fit ?

2. a) What do you mean by time series ?   **2**
   b) Discuss the various components of a time series.   **8**

3. a) State the applications of t-distribution.   **5**
   b) Discuss the advantages of non-parametric tests.   **5**

4. Explain the nature and causes of presence of autocorrelation in regression models. **10**

5. 'The basic framework of regression analysis is Classical Linear Regression Model'.
   Explain.   **10**

6. The following is the data denoting the quarterly figures regarding investments over the last five years of XYZ Ltd.

Year	Quarter I	Quarter II	Quarter III	Quarter IV
2001	101	118	90	79
2002	108	123	94	83
2003	109	125	96	86
2004	113	131	102	91

Use link relatives to the following data and calculate seasonal indices.   **10**

7. A salesman is expected to affect an average sale of Rs. 3,500. A sample test reveals that a particular salesman had made the following sales :

   Rs. 3,700,   Rs. 2,500,   Rs. 3,400,   Rs. 5,200,   Rs. 3,000 and   Rs. 2,000

   Use 0.05% level of significance and conclude whether his work is below standard or not ?   **10**

8. The result of a certain survey shows that out of 50 small sized ordinary shops, 35 are managed by men of which 17 are in cities; 12 shops in villages are run by women. Can it be inferred that shops run by women are relatively more in villages than in cities ?   **10**

9. Consider the equation of wages per employee (wage), annual profits of the firm (profit), wages offered by competitor firms (comwage) and productivity per employee (productivity).   **10**

   Wage = 1.073   + 5.288 profit   + 0.116 comwage   + 0.054 productivity

   se   = 0.797   0.812   0.111   0.022

   p-value = 0.534   0.002   0.08   0.032

   n   = 210   R-square = 0.873

   F stat = 273.07   p-value (F) = 0.000

   a) Considering the above output, state whether the results concur with priori expectations of signs.
   b) State whether the estimated coefficients are statistically significant at 5 percent level of significance.
   c) Interpret the R^2 value.
   d) Test the overall significance of the model.
   e) Assuming the coefficients of the regressors in the model to be zero, estimate the mean wage per employee.