2016

M. Com.

2nd Semester Examination

ADVANCE BUSINESS STATISTICS

PAPER – COM – 203

Full Marks : 50

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

UNIT – I

1. **Answer any two questions of the following:** 　　　　**5 X 2**

   (a) Proof that the Variance of Binomial Distribution is npq.

   (b) A factory producing optical lens has a small chance i.e., $\frac{1}{500}$ for any one lens to be defective. The lens is supplied in packets of 10. Use Poisson Distribution to calculate appropriate number of packets containing (i) no defective, (ii) two defects respectively in a consignment of 20000 packets.

   (c) What do you mean by Stratified Random Sampling? With an example mention its applicability.

   (d) A multiple choice test contains 8 questions with 3 answers to each question (of which only one is correct). A student answers each question by rolling a balanced dice and he tick the first answer if he gets 1 or 2, the second answer if he gets 3 or 4, and the third answer if he gets 5 or 6. To get a star marks, the student must secure at least 75 percent correct answers. If there is no negative marking, what is the probability that the student secures a star marks?

(Turn Over)

2. **Answer any one questions of the following:** 　　　　**10 X 1**

   a. (i) Proof that Poisson Distribution is a limiting case of Binomial Distribution under certain conditions.

   (ii) How do you distinguish between S.E. & S.D.? 　　　6+4

   b. (i) What do you mean by Purposive Sampling?

   (ii) Find out the Mean, Variance & S.D. of Poisson Distribution with the help of Factorial Moment. 　　　3+7

UNIT – II

3. **Answer any two questions of the following:** 　　　　**5 X 2**

   a) Show that the sample mean based on a simple random sample with replacement (SRSWR) is an unbiased estimator of the population mean.

   b) The following observations constitute a random sample from an unknown population. Estimate the mean and standard deviation of the population – 14, 19, 17, 20, 25.

   c) Explain the concept of statistical significance.

   d) Distinguish between Point Estimation and Interval Estimation.

4. **Answer any one questions of the following:** 　　　　**10 X 1**

   a) (i) What do you mean by Analysis of Variance (ANOVA)?

   (ii) Distinguish between Null Hypothesis and Alternative Hypothesis. 　　　4+6

   b) (i) What is Critical Region, give answer with diagram.

   (ii) out of 20000 customers Accounts, A sample of 600 Accounts was taken to test the accuracy of posting and balancing and 45 mistakes were found. Assign limits within which the number of defective cases can be expected at 5% level. 　　　5+5

(Internal Assessment :10 marks)