M.Sc. (Part–I) Semester—II (CBCS Scheme) Examination
STATISTICS (GIC–B)
(Statistical Tools for Data Analysis)
Paper–VIII

Time : Three Hours] [Maximum Marks : 80

Note :— Solve either A or B from each question.

1. (A) (a) Describe Ogive curve in brief. Also, write the procedure of obtaining median graphically.

(b) Define : (i) Estimator

(ii) Parameter

(iii) Null hypothesis

(iv) Alternative hypothesis.

(c) What do you mean by p-value in statistical inference ? 4+8+4

OR

(B) (i) What are the advantages of diagramatic representation of data ?

(ii) Define : (a) Type I error (b) Type II error

(c) Simple hypothesis (d) Composite hypothesis

(iii) What are the characteristics of good estimator ? Explain any one. 4+8+4

2. (A) (a) When do we use paired t-test and how to apply it ?

(b) Constract 95% confidence limits for population mean μ of normal population based on small sample with σ unknown. 8+8

OR

(B) (i) For sample of size greater than 30, explain how test of significance for specific value of population mean can be carried out.

(ii) Explain t-test for difference of means of two normal populations. 8+8

3. (A) (a) Explain test of goodness of fit.

(b) How is the independence of two attributes tested ? 8+8

OR

(B) (i) Explain Kolmogorov-Smirnov one sample test as a test of goodness of fit. Also compare it with χ^2 test of goodness of fit.

(ii) Explain sign test for two samples. 8+8

4. (A) (a) What is scatter diagram ? Discuss its use in regression analysis.

(b) Define Karl Pearson coefficient of corelation. Why it is called as producet moment correlation coefficient.

(c) What do you mean by lines of regression ? Discuss the situation when they coincide. 6+5+5

OR

(B) (i) Define regression coefficients b_{xy} and b_{yx}. Show that arithmetic mean of regression coefficients is greater than the correlation coefficient r, provided $r > 0$.

(ii) Describe least square method. 8+8

5. (A) (a) Discuss how to use pivot table option in MS-Excel to create cross-tabulation used in data analysis.

(b) Explain the terms :

(i) Select if (ii) Filter

(iii) Sort (iv) Recode used in SPSS. 8+8

OR

(B) (i) Write appropriate 'R' command to use t-test for difference of mean and also paired t-test.

(ii) What are the different types of graphs available in SPSS ? Write a note on options in histogram. 8+8