JBE-003-1171002   Seat No. _____

M. Sc. (Sem. I) (CBCS) Examination

December - 2019

Statistics : MS - 102

(Statistical Computing & Numerical Methods)

Faculty Code : 003
Subject Code : 1171002

Time : $2\frac{1}{2}$ Hours]   [Total Marks : **70**

Instructions : (1) Attempt all questions.

(2) Each question carries equal marks.

1   Answer the following : (any **seven**)   **14**
- (1) Give the command to create a Bar Chart.
- (2) Which test is used to check normality assumption for sample size more than 2000 ?
- (3) Give the command to create a pie chart.
- (4) What is the use of floor ( ) function in R ?
- (5) Write the difference between "%% and "% / %" ?
- (6) X is vector c (8, 15, 26, 40, 45). Which function is used to find median in R ?
- (7) Give the command to create a Box plot.
- (8) X is vector c (15, 12, 19, 18, 13). What is the output of mean (X) ?
- (9) Which function is used to create a Histogram in R ?
- (10) Give the command to create a Stem - and - leaf plot.

2   Answer the following : (any **two**)   **14**
- (a) Explain Paired t - test with example. Also write R command.
- (b) In a lot of 100 bulbs 5% bulbs are defective. 5 bulbs are taken at random. What is the probability that none of the bulb is defective ?
- (c) In Binomial Distribution prove that Variance is npq.

3 Answer the following :   **14**

(a) For binomial distribution $n = 8$ and $P(x = 2) = P(x = 6)$. Find p.

(b) Explain One - way analysis of variance (ANOVA) with Example. Also write R command.

OR

3 Answer the following :   **14**

(a) Explain Bisection Method for Non Linear Equation.

(b) Find Real Root of $f(y) = y3 - 2y - 5 = 0$, Using N-R Method correct to three decimal places.

4 Answer the following : (any **two**)   **14**

(a) A and B play a game 8 times. In each trial, the probability that a wins is 2/3 and that of B is 1/3. Find the probability that A wins 5 of more times in this game.

(b) Explain Chi-square test. Also write R command.

(c) A manufacturer of Lap Top sets trying to find out what variables influence the sales of Lap Top sets. A sample of 500 households was selected and the information obtained is classified as shown below.

Lap Top			
		Have	Do Not Have
Income	Low	0	250
Group	Middle	50	100
	High	80	20

Is there any relationship between having Lap Top and level of income?

5 Answer the following : (any **two**)   **14**

(a) What is the difference between Pearson and Spearmen's rank correlation coefficients ? Also write Pearson and Spearmen's rank correlation R commands.

(b) Explain One sample t - test with example. Also write R command.

(c) Explain Fitting of Binomial and Poisson distribution. Also write R command.

(d) For a Poisson distribution $e - m = 0.0183$ and $P(2) = 0.1464$ find parameter.

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