2021/TDC/CBCS/ODD/ STSSEC–301T (A/B)/116

TDC (CBCS) Odd Semester Exam., 2021
held in March, 2022

STATISTICS

(3rd Semester)

Course No. : STSSEC–301T

Full Marks : 50
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Pass Marks : 20

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

Honours students will answer Option—A and
Pass students will answer Option—B

OPTION—A

(For Honours Students)

Course No. : STSSEC–301T (A)

(Statistical Data Analysis Using R)

SECTION—A

Answer any *fifteen* of the following questions :

1×15=15

1. Write the syntax for bar chart in *R*.

2. Write the command for a line diagram in *R*.

(Turn Over)

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(2)

3. Write the command for box plot.

4. Write the command to alter names of axes in R.

5. Write the command for finding maximum value in a data set.

6. What is the function of summary () command in R?

7. Write the command to find correlation between the variables x and y.

8. What is the use of the command sample ()?

9. Write the command for generation of random number from normal distribution.

10. Write the command for generating random number from exponential distribution.

11. Write the code to find degrees of freedom for a chi-square distribution.

12. How to generate random numbers for a binomial distribution?

13. What is the use of the function 'scan'?

(3)

14. What is the use of 'subset' function in R?

15. What is the use of normal probability plot?

16. How can we assign a variable in R?

17. What is p-value?

18. Write the command for drawing a 95% CI.

19. Write R command for one-sample t-test.

20. Write R command for two-sample t-test.

SECTION—B

Answer any *five* of the following questions : 2×5=10

21. How do we plot a stem-leaf plot with the help of R?

22. Write and explain the command to draw a scatter plot in R.

23. Write and explain the code for computing correlation in R.

24. How can we generate reports in R?

(4)

25. Write the code for generating 500 random numbers from an $N(3.5, 2)$ distribution.

26. How can we replace $(1, 2)$th element of a 3×3 data matrix in R?

27. How to import data in R?

28. What is data cleaning?

29. Write the command for t-test for single mean.

30. How can you draw your conclusion of a hypothesis testing based on p-value?

SECTION—C

Answer any *five* of the following questions :   5×5=25

31. How to install packages in R?

32. How to plot the line of best fit in a scatter plot in R?

33. Considering X be a data vector of dimension $(n \times 1)$, write the command for computing

   (a) mean

   (b) median

   (c) mode

   (d) SD

   (e) CV

(Continued)

(5)

34. Write all possible conclusions that may be taken regarding correlation from a plot of X and Y data vectors of same dimension.

35. Write the command for generating 500 random numbers from the following distributions :

   (a) Uniform distribution

   (b) Geometric distribution

   (c) Standard normal distribution

   (d) Gamma distribution

   (e) Weibull distribution

36. Explain the normal probability test. How can you make a normal probability plot in R?

37. How can we load data files in R?

38. How can we import a data file from R and save it in a computer? Write the codes how we may edit a data file in R.

39. Generate a random sample from a normal distribution with size 60, mean = 2 and SD =1 and perform the one-sample Z-test.

40. Generate 50 random numbers from $N(3, 2.5)$ distribution and perform one-sample t-test in R.

(Turn Over)

(6)

OPTION—B

(For Pass Students)

Course No. : STSSEC–301T (B)

(Statistical Computing Using C)

SECTION—A

Fill in the blanks/Write True or False/Answer any *fifteen* from the following :   1×15=15

1. Every program statement in a C program must end with a _____.

2. The _____ function is used to display the output on the screen.

3. The _____ header file contains mathematical functions.

4. A global variable is also known as _____ variable.

5. C supports as many as _____ relational operators.

6. The _____ operator returns the number of bytes the operand occupies.

(7)

7. The expression containing all the integer operands is called _____ expression.

8. The operator _____ cannot be used with real operands.

9. The _____ operator is true only when both the operands are true.

10. Multiway selection can be accomplished using an else if statement or the _____ statement.

11. One 'if' can have more than one 'else' clause.

12. Any expression can be used for the if expression.

13. We can use the conversion specification _____ in scanf to read a line of text.

14. The printf may be replaced by _____ function for printing strings.

15. The function _____ is used to determine the length of a string.

16. The function _____ is used to sort the strings in alphabetical order.

17. How to input number of observations?

18. How to input order of the matrix in C?

19. Can we find mean of a set of observations using C program?

20. Can we sort the elements in an ascending order using C language?

SECTION—B

Answer any *five* of the following questions :   2×5=10

21. Describe the structure of a C program.

22. What is a variable and what is meant by the 'value' of a variable?

23. Define assignment operator.

24. Define logical operator.

25. Define control statement.

26. What are loops in C?

27. Define function in C language.

28. Define array in C language.

29. Write a program to print a table for any positive integer.

30. Write a program to find the largest number among two given numbers.

SECTION—C

Answer any *five* of the following questions :   5×5=25

31. What are the basic data types in C? Define them.

32. What are enumeration variables? How are they declared? What is the advantage of using them in a program?

33. Explain the various types of operator.

34. Write a program that determines whether a given integer is odd or even.

35. Describe the three types of loops in C.

36. Define nested loops in C.

37. What are the three aspects of a C function? What are the types of functions in C programming?

38. Define two-dimensional array with its declaration in C language.

39. Write a program to sort a given array of integers in ascending order.

40. Write a program to determine the transpose of a given matrix.

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