TDC (CBCS) Even Semester Exam., 2023

STATISTICS

(6th Semester)

Course No. : STSSEC-601T

[Data Analysis using Software (SPSS or Microsoft Excel)]

Full Marks : 50
Pass Marks : 20

Time : 3 hours

The figures in the margin indicate full marks for the questions

Candidates have to answer from *either* Option—A *or* Option—B

OPTION—A

Course No. : STSSEC-601T (A)

(SPSS)

SECTION—A

Answer the following as directed (any *fifteen*) : 1×15=15

1. What is variable view in SPSS?

2. What does 'Label' indicate in variable view tab of SPSS?

3. Whether any special character can be the first character of the variable name in SPSS?

4. ____ menu of main menu bar of SPSS is used to draw the box plot.

(Fill in the blank)

5. Which menu of main menu bar of SPSS is used to obtain arithmetic mean?

6. Define harmonic mean.

7. Karl Pearson's coefficient of skewness lies between ____.

(Fill in the blank)

8. Obtain 'Range' of a data set using SPSS.

9. Which quartile value of a data set is equal to median?

10. Why are normal equations used?

11. State the relation between mean and variance of a Poisson distribution.

12. Which non-parametric test can be used in SPSS to test the uniformity of the data set?

13. Exponential curve is ___. (convex/concave)

(Choose the correct answer)

14. Which menu of main menu bar of SPSS is used to obtain Karl Pearson's coefficient of correlation?

15. Define *F*-statistic.

16. If $t \sim t(n)$, then $E(t) = ?$

17. If $\chi^2 \sim \chi^2(n)$, then the value of $E(\chi^2) = ?$

18. Write the formula for *t*-test in Excel.

19. Why is ANOVA used?

20. State the limits of χ^2-distribution.

SECTION—B

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

21. Write the steps to draw histogram in SPSS.

22. Write a note on frequency polygon.

23. Write the steps to obtain median in SPSS.

24. Define coefficient of variation.

25. Write the normal equations of $y = e^{a+bx}$.

26. If X is a Poisson variate with parameter 4, then find $E(X)$ and $SD(X)$.

27. Write the steps to conduct pair t-test in SPSS.

28. Why are the signs of correlation coefficient and regression coefficients same?

29. What is meant by treatment in ANOVA?

30. Write the steps to perform χ^2-test in SPSS.

SECTION—C

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

31. Write a note on obtaining median using ogive.

32. Write the steps to draw a line diagram and box plot in SPSS.

33. Prove that standard deviation (SD) is the least root mean square deviation.

34. Prove that arithmetic mean (AM is not independent of change of origin and scale.

35. Write the steps to fit a normal distribution in SPSS.

36. Prove that for a Poisson distribution mean and variance are equal.

37. "Two independent random variables are uncorrelated, but the converse may not be true." Prove this with an example.

38. Mentioning the null hypothesis, write the steps to perform 'Student's-t' statistic to test the difference of two means.

39. Describe one-way ANOVA model.

40. Write the steps to perform χ^2-test for goodness of fit.

OPTION—B

Course No. : STSSEC–601T (B)

(Microsoft Excel)

SECTION—A

Answer the following as directed (any *fifteen*) : 1×15=15

1. State the formula for subtracting two numbers in Excel.
2. Write the procedure for filtering in Excel.
3. How can data be entered in Excel from external drive?
4. How can two numbers be multiplied in Excel?
5. Write the formula to find arithmetic mean for ungrouped data in Excel.
6. Define geometric mean.
7. Which measures of dispersion is used to calculate Karl Pearson's coefficient of skewness?
8. How to plot pie diagram in Excel?

9. How to find minimum observation in a data set using Excel?
10. Write a method of sorting in Excel.
11. Define mean deviation about mean.
12. How to arrange a data set in increasing and decreasing order in Excel?
13. How R^2 is different from adjusted R^2?
14. How can we plot multiple lines in a single plot in Excel?
15. Write the formula of '&' in Excel.
16. When is '$' symbol used in Excel?
17. When is ANOVA used?
18. Which distribution is used in ANOVA?
19. State the limits of χ^2-distribution.
20. Define χ^2-statistic.

SECTION—B

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

21. Write the procedure to draw a bar diagram in Excel.

22. State the steps to draw a histogram in Excel.

23. Define positive and negative skewness.

24. Write the steps to draw an ogive of less than type in Excel.

25. How can a polynomial of degree two be plotted in Excel?

26. State the conditions that a binomial distribution tends to a Poisson distribution.

27. Write the procedure of conducting *F*-test for comparing variance in Excel.

28. How to perform difference of means test using *t*-statistic in Excel?

29. State the assumptions of ANOVA.

30. Write the conditions of validity of χ^2-statistic.

SECTION—C

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

31. State the differences among COUNT, COUNTA , COUNTIF and COUNTBLANK in Excel.

32. How can we edit data in Excel? What will be the value of "=(Average A1 : A10)" if A9 is non-numeric?

33. Write the formula in Excel for computing—
median;
mode;
variance;
correlation coefficient;
coefficient of skewness.

34. Write a note on coefficient of kurtosis.

35. Write the procedure to plot probability distribution in Microsoft Excel.

36. Explain the procedure for finding the best fitted model to a given set of data in Microsoft Excel.

37. Explain the procedure of fitting the lines of regression in Microsoft Excel.

38. State some applications of F-distribution.

39. Write the steps to fit χ^2-distribution in Excel.

40. Write a note on non-linear curve fitting model in Excel.

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