3 (Sem–3/CBCS) STA SE 1/2

2023

STATISTICS

(Skill Enhancement Course)

Answer the Questions from any one Option.

OPTION–A

Paper : STA–SE–3014

(Statistical Data Analysis using Software Packages)

OPTION–B

Paper : STA–SE–3024

(Database Management System)

Full Marks : 50

Time : Two hours

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

OPTION-A

Paper : STA–SE–3014

(Statistical Data Analysis using Software Packages)

1. Answer **any four** from the following as directed :   1×4=4

   (a) What are the *two* views in SPSS ?

   (b) How is a variable name different from a variable label ?

      (i) It is shorter and less detailed

      (ii) It is longer and more detailed

      (iii) It is abstract and unspecific

      (iv) It refers to codes rather than variable

                    (Choose the correct option)

   (c) SPSS can be used to find the regression co-efficient between two quantitative variables.   *(State True **or** False)*

   (d) The intersection of 'less than ogive' and 'more than ogive' provides the median.   *(State True **or** False)*

   (e) Index of an array in MATLAB starts with _____.   *(Fill in the blank)*

   (f) A variable name in SPSS/MATLAB/ MS-Excel start with an aesthetic symbols.   *(State True **or** False)*

   (g) The function MIN returns the _____ number in MS-Excel.

                    (Fill in the blank)

2. Answer **any three** questions from the following :   2×3=6

   (a) How would you use the drop down menus in SPSS to generate a frequency table ?

   (b) Outline the procedure in MS-Excel to find the correlation co-efficient of two series.

   (c) What is P-value ?

   (d) State the procedure to display the frequency distribution table of a categorical variable in SPSS/MATLAB/ Minitab/MS-Excel.

   (e) How will you use regression function in MS-Excel or SPSS ?

(f) Suppose the weight of 30 students of a class are given. How will you find the modal (mode) weight using MS-Excel/MATLAB/Minitab ?

3. Answer **any two** questions from the following :   5×2=10

(a) Explain the procedure to draw histogram using MS-Excel/MATLAB/Minitab.

(b) What is the use of SPSS and MS-Excel in research ?

(c) Explain the procedure of t-test for independent samples using MS-Excel/SPSS.

(d) What is stem and leaf chart ? Explain the procedure to construct stem and leaf chart and plot it graphically using MS-Excel.   2+3=5

(e) Write a detailed note on different graph/chart options available in MS-Excel/SPSS/MATLAB/Minitab.

4. Answer **any three** questions from the following :   10×3=30

(a) (i) What are the *three* main windows of SPSS ? Explain briefly each one of them.   6

(ii) Write a short note on the type of variables/attributes available in SPSS.   4

(b) Suppose there are three candidates, candidate A, candidate B and candidate C, running for the Mayor's office in a town. To get an idea about the voters' mood, a random sample of 25 individuals was taken. Each respondent was asked about his/her preference. The data set are given as follows :

Row data set on voters' preference

C	A	A	B	C
A	C	C	B	C
B	B	C	A	A
A	C	B	A	A
A	C	C	B	C

Discuss the various steps to find the frequency distribution of the above table using SPSS/MS-Excel.

Contd.

(c) (i) What is the use of MS-Excel and SPSS for data analysis ? Which type of data can be analysed using SPSS/MS-Excel ? 5

(ii) Explain the procedure of one way analysis of variance (ANOVA) to compare the means using SPSS/MS-Excel. 5

(d) (i) Data on sales of eight different flavoured ice-cream in a factory are given. Discuss the steps involved in constructing a pie-chart using MS-Excel/MATLAB/Minitab. 5

(ii) Explain the procedure to generate a list of random numbers between two specified numbers using MS-Excel/MATLAB/Minitab. 5

(e) (i) Suppose that there is a sample of 50 women aged between 25 to 60 years. Information on their educational level and status of vitamin intake on them are recorded. Describe the procedure in SPSS/MATLAB/Minitab to test whether the two attributes are independent or not. 5

(ii) Consider a hypothetical bivariate data set and plot values of one variable on the horizontal axis and the corresponding values of the other variable on the vertical axis. Write the necessary steps by using SPSS/MS-Excel to creat scatter plot to see how the two variables under study are associated. 5

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OPTION-B

Paper : STA-SE-3024

(Database Management System)

1. Answer the following questions as directed :

1×4=4

(a) The DBMS provides an abstract view of the data that hides details of data representation and storage.

(State True or False)

(b) The language used to manipulate data in the database is called _____.

(Fill in the blank)

(c) The _____ in the referencing relation must match the primary key of the referenced relation. *(Fill in the blank)*

(d) The _____ is responsible for ensuring that unauthorized data access is not permitted.

(Fill in the blank)

2. Define the following terms : 2×3=6

(a) Integrity constraint

(b) Conceptual schema

(c) Object-Oriented database

3. Answer **any two** of the following questions :

5×2=10

(a) What are the advantages of DBMS over file processing systems ?

(b) What are the basic datatypes available in SQL ? Briefly explain.

(c) What are the advantages and disadvantages of relational database system ?

(d) What are the responsibilities of a database administrator ?

4. Answer *any three* of the following questions :   10×3=30

(a) The *XYZ* bank offer *five* types of accounts :

Loan, checking, premium savings, daily interest saving and money market. It operates a number of branches and a client of the bank can have any number of accounts. Accounts can be joint i.e. more than one client may be able to operate a given account. Identify the entities of interest and create the relations to represent the entities.

(b) Consider the following relational schema in Emp (empid, empname, dateofbirth, salary)

Works (empid, deptid)

Dept (deptid, deptname, managerid)

(i) Write the SQL statements to create the preceding relations, including all primary and foreign key constraints.   5

(ii) Write SQL statements to insert *at least three* records in each relation.   3

(iii) Write an SQL statement to give every employee a 10 per cent raise.   2

(c) What is DBMS ? What are the functions of DBMS ? Describe the three level architecture of DBMS.   2+3+5=10

(d) What is relational model ? What are the properties of relational model ? Define domain constraint and key constraint.   2+4+2+2=10

(e) Write brief description of *any two* DML commands and *any two* DCL commands of SQL.

(f) Write short notes on :   5×2=10

(i) Hierarchical database

(ii) Network database