Total number of printed pages–15

3 (Sem–3/CBCS) STA SE 1/2

2022

STATISTICS

(Skill Enhancement Course)

Answer the Questions from any one Option.

OPTION–A

(Statistical Data Analysis using Software Packages)

Paper : STA–SE–3014

OPTION–B

(Database Management System)

Paper : STA–SE–3024

Full Marks : 50

Time : Two hours

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

Contd.

OPTION–A

(Statistical Data Analysis using Software Packages)

Paper : STA–SE–3014

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

   (a) What does SPSS stand for ?

   (b) What is the use of Shift + F3 shortcut key in MS Excel ?

   (c) What is the address of the cell in the seventh column of the sixth row in an MS Excel worksheet ?

   (i) F6

   (ii) G7

   (iii) F7

   (iv) G6 *(Choose the correct option)*

   (d) In SPSS worksheet, each column represents _____.

   (Fill in the blank)

   (e) What is the use of 'abs' function in MATLAB ?

   (i) Returns the square root of a number

   (ii) Returns magnitude of a number

   (iii) Returns power of a number

   (iv) None of the above

   (Choose the correct option)

   (f) Which of the following is not a valid function in MS Excel ?

   (i) SUM ( )

   (ii) COUNT ( )

   (iii) SUBTRACT ( )

   (iv) COUNTA ( )

   (Choose the correct option)

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

   (h) SPSS cannot be used to find the correlation coefficient between two quantitative variables.

   *(State True **or** False)*

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

(a) Write the procedure to delete a variable in an SPSS worksheet.

(b) What do you mean by cells in an MS Excel sheet?

(c) What is the output of $A = [1\ 0\ 2]$; $B = [3\ 0\ 7]$; $C = A * B$; in MATLAB/ Minitab?

(d) Specify *any two* uses of SPSS.

(e) How will you add two given numbers in MS Excel?

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

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

(a) Explain briefly the 'data view' and 'variable view' of SPSS.

(b) Can you format MS Excel cells? If yes, then how?

(c) How do you add new rows and columns to an MS Excel sheet? Also state the procedure to add comments to a cell. 3+2=5

(d) Describe the option 'Split file' available in SPSS.

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

(f) Data on sales of five different items are given. Outline the procedure to construct a pie chart using SPSS.

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

(a) (i) Explain the procedure in SPSS to recode into a different variable. 5

(ii) Suppose that there is a sample of 50 women aged between 20 to 45 years. Information on their educational level and status of iron intake on them are recorded. Describe the procedure in SPSS/MATLAB/Minitab to test whether the two attributes are independent or not. 5

(b) (i) In case you don't want to modify the cell address in MS Excel when they are copied, what should you do? 5

(ii) Explain briefly Pivotables in MS Excel along with their features. 5

(c) (i) The calorie intake of a randomly chosen sample of 25 boys of a school are recorded. Explain the procedure in SPSS/MATLAB/ Minitab/MS Excel to test whether the sample average calorie intake coincides with the population average calorie intake of 2400. 5

(ii) Explain briefly the five different windows available in SPSS. 5

(d) (i) Describe briefly different chart options available in SPSS/MS Excel. 5

(ii) Blood pressure readings of the patients before and after administering a particular drug are given. Describe the procedure in SPSS/MS Excel to test whether there is significant difference in blood pressure readings of the patients before and after administering the drug. 5

(e) (i) Write a short note on the type of variables/attributes available in SPSS. 5

(ii) Data on blood pressure readings of a sample of individuals together with their smoking status are given. Using SPSS, state the procedure to create a new variable transforming the blood pressure in such a way that it will have only two categories—*(A)* Hypertensive, and *(B)* Non-hypertensive. A person is considered as hypertensive if his/her blood pressure is greater than or equal to 140. 5

(f) (i) Age of patients for three different groups are recorded. Explain the procedure in SPSS/MATLAB/Minitab to examine whether there is significant difference in terms of the age of patients across the three groups. 5

(ii) Data on sex of individuals and systolic blood pressure are given for a sample of 24 individuals. Describe the procedure to use two sample *t*-test to study whether male and female systolic blood pressure with the help of SPSS/MATLAB/Minitab. 5

(g) Data on baby weight and gestational period are given. Using appropriate MS Excel functions, state the procedure to find—

(i) the mean, median, mode and standard deviation of both the variables; 6

(ii) the correlation coefficient between baby weight and gestational period and interpret the result. 4

(g) Ages of 50 individuals are given. Using MS Excel/MATLAB/Minitab, state the procedure to—

(i) find the minimum value, maximum value, range, skewness and kurtosis of the given data. 5

(ii) arrange the ages in appropriate class intervals and draw a histogram. 5

OPTION–B

(Database Management System)

Paper : STA–SE–3024

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

(a) What is the full form of DBMS ?

(i) Data of Binary Management System

(ii) Database Management System

(iii) Database Management Service

(iv) Data Backup Management System

(b) Which of the following is not an example of DBMS ?

(i) MySQL

(ii) Microsoft Access

(iii) IBM DB2

(iv) Google

(c) Which of the following is known as a set of entities of the same type that share same properties or attributes ?

(i) Relation set

(ii) Tuples

(iii) Entity set

(iv) Entity relation model

(d) What does an RDBMS consist of ?

(i) Collection of records

(ii) Collection of keys

(iii) Collection of tables

(iv) Collection of fields

(e) The ability to query data, as well as insert, delete and alter tuples, is offered by

(i) TCL (Transaction Control Language)

(ii) DCL (Data Control Language)

(iii) DDL (Data Definition Language)

(iv) DML (Data Manipulation Language)

(f) Which of the following is the subset of SQL commands used to manipulate Oracle structures, including tables ?

(i) Data Described Language

(ii) Data Retrieval Language

(iii) Data Manipulation Language

(iv) Data Definition Language

(g) Which of the following establishes a top-to-bottom relationship among the items ?

(i) Relational schema

(ii) Network schema

(iii) Hierarchical schema

(iv) All of the above

(h) The oldest DB model is

(i) Network

(ii) Physical

(iii) Hierarchical

(iv) Relational

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

(a) What is database system ?

(b) How many types of database languages are there ?

(c) Define a relational schema and a relation.

(d) What is data abstraction in DBMS ?

(e) What are DDL (Data Definition Language) and DML (Data Manipulation Language) ?

(f) What is RDBMS ?

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

(a) What are the advantages of DBMS ?

(b) Discuss relational model concept with example.

(c) Explain different levels of data abstraction in a DBMS.

(d) What are the different types of data models ? Explain briefly.

(e) How can a view be created ? Explain with example.

(f) What are structures of database ? Explain in detail.

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

(a) Discuss in brief the role of database user and administrators.

(b) Discuss the advantage and disadvantage of using database management system.

(c) Write SQL alter statement to the following table of students :

Roll no.	**Name**
1.	Ram
2.	Abhijit
3.	Raju
4.	Rita

(i) Add two columns AGE and COURSE to the table.

(ii) Modify column COURSE in the table.

(iii) Drop column COURSE in the table.

(d) Write the queries of the following with example :

(i) Create table

(ii) Update table

(iii) Delete table

(iv) Insert into table

(v) Select

(e) Write the difference between a database and a relational database.

(f) What is relational model ? Explain relational model concept. Discuss in brief the properties of relational model.

(g) What is integrity constraint ? Discuss the properties of relational model in brief.

(h) Define object-oriented database. What are the components of object-oriented database ? Explain in brief.
