

**Faculty of Management
Osmania University
Practical Question Bank
BBA (Business Analytics)
Semester VI w.e.f. 2021
COURSE CODE: DSE - 601
COURSE(B): Business Analytics Programming**

Total Marks : 35

**Record : 10 Marks
Practical's : 15 Marks
Viva Voice: 10Marks**

Record Work:


- 1. Input: Students must write the procedure/steps for the given question /problem.**
- 2. Process: Students must write Steps/ Navigations to execute**
- 3. Output: Students must show the Result/Output and interpret the results.**

Use SQL, SPSS, Python and R

Use MySQL to answer Questions 1 to 20

Suplier Table					
Sno	Sname	Item	Price	City	Contact
S1	Suresh	Key board	2000	Hyderabad	9648738496
S2	Kiran	Processor	10000	Delhi	9266061682
S3	Mohan	Mouse	1500	Delhi	9277377311
S4	Ramesh	Laptop	50000	Hyderabad	9690934130
S5	Rani	Mouse	1200	Mumbai	9163817742
S6	Sri kanth	Camera	4000	Bangalore	9189931625
S7	Sridhar	Printer	12000	Chennai	9166759738
S8	Mohit lal	Laptop	40000	Delhi	9721084487
S9	Dwivedi	Camera	3600	Bangalore	9297608713
S10	Anupama	processor	13000	Hyderabad	9169194047
S11	Ashok	Monitor	7000	Hyderabad	9340147995
S12	Rekha	Keyboard	1800	Mumbai	9171145257
S13	Vinay	Mouse	1600	Bangalore	9785844236
S14	Deepak	Hard Drive	5000	Delhi	9789763203
S15	Priya	Printer	11000	Chennai	9598134871
S16	Rahul	Webcam	2500	Hyderabad	9818644225
S17	Sneha	Graphics Card	20000	Bangalore	9716003428
S18	Arjun	Processor	15000	Mumbai	9297617626
S19	Anil Kumar	Laptop	45000	Chennai	9801858094
S20	Kavitha	Mouse	1300	Hyderabad	9754705736

- 1 Create the Supplier table with the following structure.
Sno VARCHAR(10) PRIMARY KEY, Sname VARCHAR(50) NOT NULL,
Item VARCHAR(50), Price INT, City VARCHAR(50), Contact VARCHAR(15)

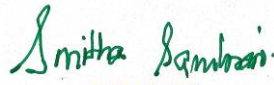

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- 2 Insert the given supplier data into the Supplier table. Write SQL INSERT queries for all rows. Ensure the data matches the given schema.
- 3
 - a. Write a query to display the names and prices of all items that cost more than 10,000.
 - b. Retrieve the names of suppliers and their corresponding items located in the city Hyderabad.
- 4
 - a. Write a query to fetch all records where the item is either Laptop or Camera.
 - b. Find the details of suppliers whose contact number starts with 916.
- 5 Display the details of all suppliers, sorted by Price in descending order.
- 6
 - a. Write a query to calculate the total price of all items supplied by suppliers in Bangalore.
 - b. Find the average price of items supplied in the city Delhi.
- 7
 - a. Modify the Supplier table to add a UNIQUE constraint on the Contact column.
 - b. Alter the Supplier table to add a check constraint that ensures the Price is greater than 0.
- 8
 - a. Update the contact number of the supplier Suresh to 9876543210.
 - b. Delete all records of suppliers whose Item is Mouse.
- 9 Create a new table named Orders:
OrderID INT PRIMARY KEY,
Sno VARCHAR(10),
Quantity INT,
FOREIGN KEY (Sno) REFERENCES Supplier(Sno)
Write a query to fetch the supplier names and the total quantity of items supplied by each supplier.
Using the Supplier and Orders tables, find the total price (Price ×

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Quantity) for each order.

- 10
 - a. Write a query to find the suppliers who supply items at a price higher than the average price of all items.
 - b. Retrieve the details of suppliers who supply the second most expensive item.

- 11
 - a. Write a query to count the number of suppliers from each city.
 - b. Find the maximum price of items supplied in each city.

- 12 Use the CONCAT function to display the supplier's name and city in the format:
Sname (City)

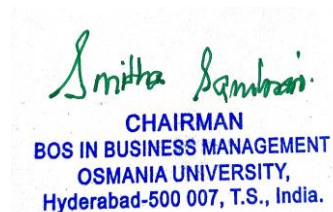
- 13 Write a query to fetch the names of suppliers who supply the same type of item (e.g., Mouse) but at different prices.
Retrieve the details of suppliers who supply the lowest priced item in each city.

- 14
 - a. Write a query to display the first three characters of all supplier names (Sname).
 - b. Use the LENGTH function to find the length of supplier names and sort them in ascending order based on the length.

- 15
 - a. Write a query to find the details of suppliers who supply items at a price higher than the maximum price of an item in Mumbai.
 - b. Retrieve the supplier names (Sname) whose contact numbers do not repeat in the table.

- 16 Create another table named Cities with the following data:
CityID INT PRIMARY KEY,
CityName VARCHAR(50),
Region VARCHAR(50)
Populate it with cities from the Supplier table and write a query to join the Supplier and Cities tables to fetch supplier details along with their

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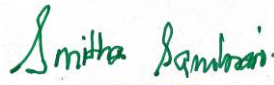
respective regions.

- 17 Add a new column DateOfSupply (DATE) to the Supplier table and populate it with random dates for each supplier. Write a query to fetch the details of suppliers who supplied items in the last 30 days.
- 18 Write a query to remove duplicates from the Supplier table based on the Contact column while retaining the first occurrence.
- 19 Write a query to fetch the total number of unique items supplied by each city.
- 20
 - a. Write SQL query to increase the price of keyboard by Rs. 200 and print the table.
 - b. Write SQL query to display supplier number, supplier names and item price for supplier in Delhi in the ascending order of item price.

From Question 21 to 30 Use PSPP/SPSS for the following

21. Write the procedure to install and configure PSPP/SPSS.
22.
 - a. Load a data set and classify its variables into categorical and numerical data types.
 - b. Explain the Display View and Variable View and the interface in Variable view.
23.
 - a. Create a data set containing atleast 8 variables like : Respondent ID, Gender, Age, Date of placing the order, Quantity ordered, Date of delivery, Payment mode, Amount paid with at least 50 records.
 - b. Modify the data set into numerical values where ever required in another sheet of Excel.
 - c. Import the data set to PSPP.
24.
 - a. Convert the data set from Display to Variable View by providing all necessary information.
25.
 - a. For Categorical values of the data, find the frequencies and give your

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description about the data with necessary graphs.

26. Use graphs to explain the data and explain the outputs.
27. Create a new categorical variable based on the values of a numerical variable. (Eg: "Age into groups like "Youth", "Adult", and Senior Citizen")
28. Generate descriptive statistics for atleast two numerical variables and give your interpretations.
29. Create a cross table and explain describe the statistics. Give your inferences.
30. Divide the data set based on Categorical variable and find the average of a numerical variable for each of the groups. Give your inferences.

Use Python Programming for Questions 31 to 42

31. Write the steps to
 - a. Install Anaconda Navigator on your system.
 - b. Open the Navigator, explore its interface, and launch Spyder and Jupyter Notebook.
 - c. Explain the purpose of each tool briefly.
32. Write a Python Script to demonstrate the use of strings, tuples, sets, lists and dictionaries.
33. Perform atleast two operations on each type.
Ex: Appending to a list, accessing tuple elements, union of sets etc.
34. Write a program to take inputs from a student.
Ex: Name of the student, Stream, Marks in Business Analytics in Sem I, Sem II, Sem III, Sem IV and Sem V., GPA in all Semesters.
35. Write a program to take a string input from user.

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Perform the following operations:

- a. Count Vowels
- b. Reverse the string
- c. Convert the string to upper case and lower case

36. Write a Python Script to create a list of 10 numbers.

Perform the following:

- a. Add an element
- b. Remove an element
- c. Arrange them in ascending order
- d. Arrange them in descending order
- e. Find the maximum and minimum values
- f. Convert the list into a tuple and find the length of the tuple.

37. Write a program to create two sets:

One with numbers from 1 to 50 and another with prime numbers from 1 to 50

Perform the following operations:

- a. Union of sets
- b. Intersection of sets
- c. Difference between the sets
- d. Symmetric difference between the sets

38. Create a dictionary to store student details.

(Ex: Name, Roll Number, Marks in each semester, GPA etc.)

Add details of 5 students

Perform the following

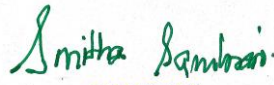
- a. Access a specific student's marks
- b. Update marks of one student
- c. Delete a student's record

39. Using the Array module, create an array of integers.

Perform the following operations:

- a. Add an element to the array
- b. Remove an element from the array
- c. Find the sum and average of array elements.

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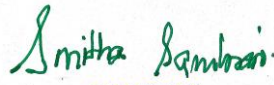
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40. Write a Python program to take a number as input and generate the multiplication table.
41. Write a python Program to take a number as input and calculate the factorial of the number.
42. Write a program to assign three values to the variables a, b and c and perform the operations addition, multiplication, $((a+b)+c)$, $(a-(b+c))$, $(a*(b+c))$, $(a + (b*c))$, $(a*(b-c))$.

For Questions 43 to 52 use R Programming

43.
 - a. Explain the procedure to install R and R studio on your system.
 - b. Open R studio, explore the interface and explain the purpose of the Console, Script, Environment and Plots Panels.
 - c. Create a simple R script to print "Welcome to R Programming"
44.
 - a. Create a numeric vector of the first 10 even numbers.
 - b. Perform the following operations
 - i. Find the sum and mean of the vector.
 - ii. Add 5 to each element of the vector.
 - iii. Extract the 3rd and 7th elements of the vector.
45. Create variables of the following data types: Numeric, character, logical and factor.
Write a script to check the data type of each variable and convert one data type to another (Ex; Numeric to character).
46. Create two numeric vectors A and B, each containing 5 random numbers.
Perform the following operations:
 - a. Add the two vectors
 - b. Subtract the two vectors
 - c. Multiply the two vectors

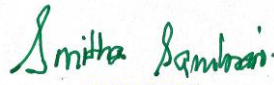
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- d. Divide the vector A by B
 - e. Calculate the sum of all elements in A
 - f. Calculate the product of all elements in B.
 - g. Create a third vector C where each element is the square of the corresponding element in A.
47. Write the R script that performs
- a. Ask the user to input a number.
 - b. Generate and display the multiplication table for the given number.
 - c. Also generate and display the factorial of the given number.
48. Create a numeric vector containing 15 random integers between 1 and 100.
Use logical functions to filter the vector and display
- a. All numbers greater than 50.
 - b. All numbers that are even.
 - c. All numbers between 30 and 70.
 - d. All numbers prime.
49. a. Create a dataframe “Students” with the following columns:
- (i) Name : A vector of 10 student names
 - (ii) Age: A vector of their ages (between 18 to 25)
 - (iii) Marks: A vector of their marks (out of 100)
- b. Use logical functions to
- (i) Identify students who scored more than 75 marks.
 - (ii) Find students who are younger than 20 and scored less than 50 marks.
 - (iii) Determine if any student scored exactly 100 marks.
50. Create a 3x3 matrix with numbers from 1 to 9
Perform the following:
- a. Find the transpose of the matrix.
 - b. Calculate the sum of each row and each column.
 - c. Access the element in the second row and third column.

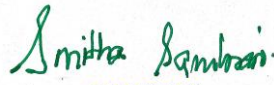
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- 51 Create two 3x3 matrices A and B with random number 1 to 20.
Perform the following:
- Add the two matrices
 - Subtract Matrix A from
 - Multiply A and B
- 52 Import a CSV file into R and display the first 10 rows of the data set.
Modify the data set by adding a new column and save the updated data set as a new CSV file.

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