

Roll Number

SET A



INDIAN SCHOOL MUSCAT
SECOND PRE - BOARD EXAMINATION
COMPUTER SCIENCE (083)

CLASS: XII

TERM 2

Time Allotted: 2 Hrs.

13.04.2022

Max. Marks: 35

GENERAL INSTRUCTIONS:

The question paper is divided into 3 sections – A, B and C

- Section A, consists of 7 questions (1-7). Each question carries 2 marks.
- Section B, consists of 3 questions (8-10). Each question carries 3 marks.
- Section C, consists of 3 questions (11-13). Each question carries 4 marks.
- Internal choices have been given for question numbers 7, 8 and 12.

Section-A

Each question carries- 2 marks

| Q.No | Part No. | Question | Marks |
|------|----------|---|-------|
| 1. | | What is a stack? What is push and pop operation related to stack? | 2 |
| 2. | i) | Expand the following: XML, SMTP | 1 |
| | ii) | Rearrange the wired and wireless medium from the following: Telephone line, Fiber Optic Cable, Radio waves, Coaxial Cable, Microwave, Infrared wave. | 1 |
| 3. | | What do you mean by primary key and candidate key with respect to a table? | 2 |
| 4. | | A resultset is extracted from the database using the cursor object (that has been already created) by giving the following statement, there are 8 records. Mydata = cursor.fetchall() a) How many records will be returned by fetchall() method? b) What will the data type of Mydata object after the given command is executed? | 2 |

5. Write the output of the queries a) to d) based on the table, **FLIGHTS** given below:

2

Table: FLIGHTS

| Fl_No | Starting | Ending | No_Flight | No_Stops |
|-------|-----------|-----------|-----------|----------|
| IC301 | MUMBAI | DELHI | 8 | 0 |
| IC799 | BENGALURU | DELHI | 2 | 1 |
| MC101 | INDORE | MUMBAI | 3 | 0 |
| IC302 | DELHI | MUMBAI | 8 | 0 |
| AM812 | KANPUR | BENGALURU | 3 | 1 |
| IC899 | MUMBAI | KOCHI | 1 | 4 |

- a) SELECT Fl_No, No_Flight FROM FLIGHTS WHERE
Starting = 'KANPUR' AND Ending = 'BENGALURU' ;
- b) SELECT Fl_No, Starting FROM FLIGHTS WHERE
No_Flight > 4 ;
- c) SELECT Fl_No, Ending FROM FLIGHTS WHERE Ending
Like "%LHI%" ;
- d) SELECT Ending, COUNT(*) FROM FLIGHTS GROUP BY Ending;

6. i) Which MySQL command is used to create a database named "DEPT" ? 1
- ii) What do you mean by NULL value with respect to a column value in a table? 1

7. Consider the table, **SOFTDRINK** given below:

2

Table: SOFTDRINK

| Drinkcode | Dname | Price | Calories |
|-----------|----------------|-------|----------|
| D101 | Lime and Lemon | 20.00 | 120 |
| D102 | Apple Drink | 18.00 | 120 |
| D103 | Nature Nectar | 15.00 | 115 |
| D104 | Green Mango | 15.00 | 140 |
| D105 | Aam Panna | 20.00 | 135 |

- a) Identify the cardinality and degree of the table SOFTDRINK.
- b) Which should be the primary key? Justify your answer.

OR

- a) Identify the candidate key(s) from the table 'SOFTDRINK'.

b) Consider the table “STOCK” given below:

Table: STOCK

| Sid | Drinkcode | Qty |
|-----|-----------|-----|
| S01 | D101 | 15 |
| S02 | D102 | 25 |
| S03 | D103 | 30 |
| S04 | D104 | 44 |

Which field will be considered as the foreign key if the tables SOFTDRINK and STOCK are related in a database?

Section-B

Each question carries- 3 marks

8. Reshma has created a list of marks Computer Science of 6 students. Write a program, with separate user defined functions to perform the following operations: 3

- Push the marks into a stack, where the corresponding marks is greater than 85.
- Pop and display the content of the stack.

For Example:

If the sample Content of the list is as follows:

M = [92,80,73,77,98,95]

Sample Output of the code should be:

95 98 92

OR

Aniket has a list containing 5 integers. You need to help him create a program with separate user defined functions to perform the following operations based on this list.

- Traverse the content of the list and push the even numbers into a stack.
- Pop and display the content of the stack.

For Example:

If the sample Content of the list is as follows:

N = [12, 13, 34, 45, 10]

Sample Output of the code should be:

10 34 12

9. i) A table, **CUSTOMER** has been created in a database with the following fields: 1
CRCODE, CNAME, ADDRESS, PHONENO
Give the SQL command to modify the size of **ADDRESS** column (new size is of type variable character of size 50) of the **CUSTOMER** table.
- ii) What do you mean by a constraint with respect to a column in a table? What is default constraint? 2

10.
- Nivedita has to access an existing database named **EXAM** in MYSQL. She now needs to create a table named **RESULTS** in the database to store the records of marks of students. The table **RESULTS** has the following structure.Help her to complete the task by suggesting appropriate SQL commands.
- 3

Table: RESULTS

| Field name | Data Type | Remarks |
|------------|---------------|-------------|
| STU_ID | INTEGER | Primary Key |
| FNAME | VARCHAR(25) | NOT NULL |
| LNAME | VARCHAR(25) | |
| EXAM_ID | INTEGER | |
| SCORE | DECIMAL(10,2) | |

Section-C
Each question carries- 4 marks

11.
- Write queries a) to d) based on the tables **CLIENT** and **CARDEN** given below:
- 4

Table: CLIENT

| CLCODE | CLNAME | CODE |
|--------|-------------|------|
| 1001 | Hemant Shah | 501 |
| 1002 | Raj Lal | 509 |
| 1003 | Feroza Sahu | 503 |
| 1004 | Ketan Dhal | 502 |

Table: CARDEN

| CODE | CARNAME | MAKE | COLOUR | CAPACITY | CHARGES |
|------|---------|----------|--------|----------|---------|
| 501 | A-Star | Suzuki | Red | 3 | 1200 |
| 503 | Indigo | Tata | Silver | 3 | 1400 |
| 502 | Innova | Toyota | White | 7 | 2500 |
| 509 | SX-4 | Suzuki | Silver | 4 | 1500 |
| 510 | C-Class | Mercedes | Red | 4 | 10000 |

- a) To display the name of all the SILVER coloured cars.
- b) To display name of Car, Make and sitting Capacity of cars in descending order of their sitting Capacity.
- c) To display the highest Charges at which a vehicle can be hired from CARDEN.
- d) To display the Client name and the corresponding name of the Cars hired by them.

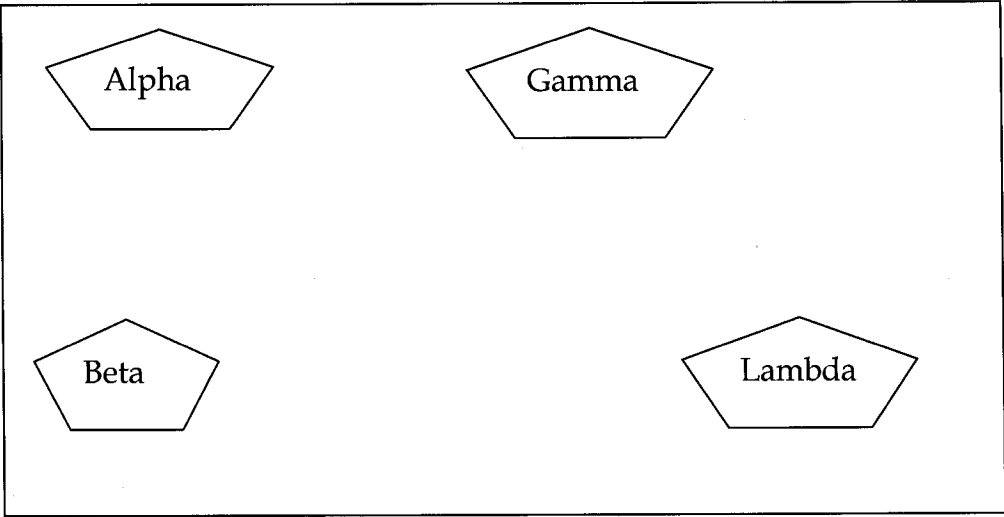
12.
- i) Give one advantage and one disadvantage of Star topology.
- 2

OR

Differentiate between a bridge and a gateway.

- ii)
- Define a) Nodes(Workstations).
b) Domain Name.
- 2

13. “Knowledge Oasis” has setup its new centre at Mangalore for its web-based activities. It has four buildings as shown below:



Distance between various buildings are given below:

| | |
|-----------------|-------|
| Alpha to Beta | 50 m |
| Beta to Gamma | 150 m |
| Gamma to Lambda | 25 m |
| Alpha to Lambda | 170 m |
| Beta to Lambda | 125 m |
| Alpha to Gamma | 90 m |

No. of Computers in various buildings are:

| Building | No. of computers |
|----------|------------------|
| Alpha | 25 |
| Beta | 50 |
| Gamma | 125 |
| Lambda | 10 |

- a) Suggest and draw a cable layout to efficiently connect the various buildings.
- b) Suggest the most suitable place(ie.,building) to house the server of this organization with a suitable reason.
- c) Suggest the placement of the following devices with justification:
 - i) Repeater
 - ii) Hub/Switch
- d) The organization is planning to link its front office situated in the city in a hilly region where cable connection is not feasible, suggest an economic way to connect it with reasonably high speed.

End of the Question Paper