

**SET-4****Series BVM/C****Code No. 90**

Roll No.

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Candidates must write the Code on the title page of the answer-book.

- Please check that this question paper contains **11** printed pages.
- Code number given on the right hand side of the question paper should be written on the title page of the answer-book by the candidate.
- Please check that this question paper contains **7** questions.
- **Please write down the Serial Number of the question before attempting it.**
- 15 minute time has been allotted to read this question paper. The question paper will be distributed at 10.15 a.m. From 10.15 a.m. to 10.30 a.m., the students will read the question paper only and will not write any answer on the answer-book during this period.

INFORMATICS PRACTICES

*Time allowed : 3 hours**Maximum Marks : 70*

Instructions :

- All questions are compulsory.*
- Answer the questions after carefully reading the text.*
- Q. 2 and Q.4 have to be answered with respect to Java Language.*
- Q.3, Q.5 and Q.6 have to be answered with respect to MySQL.*



1. (a) (i) Out of the following Networks, which one is LEAST likely to be a WAN (Wide Area Network) ?
Internet, Branches of a Bank, Network within a School
- (ii) Name one Communication Media used in WAN. 2
- (b) A College has a network that has to be used by the management only. Explain 2 methods used to ensure that only a few authorized people are allowed access to that network. 2
- (c) Name the unique address consisting of a 12-digit hexadecimal notation, assigned to a network card that identifies the Network Card. What are the two main components of this address ? 2
- (d) Explain in brief any two freedoms offered by open source software. 2
- (e) Write one point of similarity and one point of difference between ASCII and Unicode. 2
2. (a) Distinguish between Java and Netbeans. 1
- (b) Identify invalid variable names from the following. State reason(s) if invalid. 1
- (i) 1Marks
- (ii) Marks1
- (iii) for
- (iv) _sales
- (c) (i) Which property of jList component lets us add items in a ListBox ?
- (ii) Sanya has created a List box on her form and has set the selectionMode property to MULTIPLE_INTERVAL. What is the purpose ? 2

OR

- (ii) Write one main difference between List box and Combo box.
- (d) Name four HTML tags that are needed to form the basic structure for every HTML file. 2

OR

Distinguish between HTML and XML. Write two points.



- (e) What will be displayed in jTextField1 and jTextField2 ? 2

```
int x,y,z,t;  
x = 7;  
y = 10;  
z = x+y*6;  
t = x + y;  
jTextField1.setText(""+z);  
jTextField2.setText(""+t);
```

- (f) Write the output that will be displayed on jLabel1 and jLabel2. 2

```
String a,b,c,d,x;  
a="Computers";  
b="are";  
c="really";  
d="interesting";  
int e = a.length()/3+b.length()*2;  
x=b+c+d;  
x=a.concat(x);  
jLabel1.setText("The value of e =" + e);  
jLabel2.setText(x.toUpperCase());
```

3. (a) While creating a table, which constraint applied on a column ensures that the column will not be able to contain NULL values as well as all the rows will have unique values for that column ? 1
- (b) Ajay is inserting data in a table named 'Friend' without adding values in Address column for some of the records. What value does MySQL save in such columns ? 1

OR

Write SQL statement to display details of only those records where Ajay entered no values in the "Address" column ?



- (c) (i) Name any 2 Group/Aggregate functions used in MySQL.
- (ii) Table 'SCHOOL' has details about students in a school. One of its columns is 'HOUSE' that stores the house that the student belongs to. The data in HOUSE column may be 'Gandhi'/'Naidu'/'Bose'/'Bhagat'.

Write SQL query to fetch the number of students in 'Bose' house.

2

- (d) Consider the following table :

Table : Results

STUDENTID	NAME	EXAMID	SCORE
10	Leena	1	20
10	Leena	2	25
11	Samarth	1	30
11	Samarth	2	35
12	Jai	1	14
12	Jai	2	15
14	Shoaib	1	30
14	Shoaib	2	12

Abhay wants to know the number of Students who took the test. He writes the following SQL statement to count Studentid without duplicates. However the statement has error(s). Rewrite the correct statement.

2

SELECT DISTINCT(COUNT STUDENTID) FROM Results;

- (e) Naman is using the following SQL statement to delete the row for ROOMID = 15 from the table "ROOM"

DROP ROOM WHERE ROOMID EQUALS 15;

However he is getting error. Rewrite the correct statement.

2



(f) Consider the following table 'Student'

2

Table : Student

RNO	NAME	PHONE	AGE	CITY
1	Ramesh Kumar	934578912	18	Bengaluru
2	Amit Singh	980452317	18	Mumbai
3	Niharika Yadav	934512367	20	Delhi
4	Timi Anand	911984334	18	Mumbai
5	Shoaib Khan	876534902	20	Bengaluru
6	Aman Malik	981178655	18	Delhi

Write SQL queries to

- (i) Create a point SP1 in a transaction such that you can roll the transaction back to SP1 without rolling back the entire transaction in case of failure.
- (ii) Increase AGE in every row by 2.

OR

Insert a new row in the table with appropriate values.

- (iii) Undo (Cancel) the changes made in the table, that is, Roll the transaction back to SP1.

4. (a) Write the value of R after the following code is executed.

2

```
int P= 3, Q = 6, R;  
R=0;  
if( P >3)  
    R = R+1;  
else if ( P <= 3 && Q>6)  
    R=R+2;  
else if ( P < 3 && Q < 7)  
    R= R+3;  
else if ( P<3 || Q <7)  
    R= R+4;  
else  
    R = R+5;
```



- (b) Write the values of variables code and z after execution of the following code :

2

```
int z;  
z = 0;  
char code;  
code = 'w';  
  
switch (code)  
{  
    case 'w' : z = z+1;  
    case 'r' : z = z+2;  
                break;  
    case 's' : z=z +3;  
                break;  
    default : z = z+4;  
}
```

OR

What happens if break statement is omitted with a case in switch statement ?

- (c) How many times will the 'while' loop execute ?

2

```
int K = 7;  
int I = -2;  
while (I <= K) {  
    I = I + 2;  
    K=K-1;  
}
```

OR

What different values will the variable I take when the 'while' loop is executed ?



- (d) The following code has error(s). Rewrite the correct code underlining all the corrections made : 2

```
int A assigned 3;
int I, sum = 0;
for {I = 1, I<=5, I=I+1}
{
A = A-2
sum = sum +2;
}
```

- (e) Write the output that will be displayed in jTextField1 : 2

```
int i,j,k;
    i = 30;
    j = 10;
    k = 0;
do
{
    i = i - 5;
    k = k + i;
}
while (i > j);
jTextField1.setText(""+k);
```

- (f) Ms. Priya works for a school. She is motivating the students of her school to drink more water daily. She has created an interface. A screenshot of the same is shown below :

The screenshot shows a Java Swing window titled "How Much Water Do I need to Drink?". The window has a title bar with standard window controls. The main content area contains the following elements:

- A text label "Enter your Weight in kg" followed by a text input field.
- Four radio buttons for selecting exercise levels: "No Exercise", "Less Exercise", "Moderate Exercise", and "Heavy Exercise".
- Three buttons: "Calculate Amount of Water", "Clear", and "Exit".
- Four more text input fields, each with a label: "Amount of Water (in litres)", "Amount of Water(For Exercise)", "Total Amount of Water (in litres)", and "Total Amount of Water(Glasses)".



The student has to enter weight in kg and how much exercise (No/Less/Moderate/Heavy) is done by him/her.

- Amount of Water (in litres) is calculated by dividing the weight by 25. (This is the amount of water needed without accounting for Exercise)
- Amount of Water (For exercise) is calculated using the following criterion :

Type of Exercise	Amount of water (For Exercise)
No	0
Less	0.35 litres
Moderate	0.65 litres
Heavy	0.9 litres

- Total Amount of Water (in litres) is the sum of Amount of water (in litres) and Amount of water (For Exercise).
- Total Amount of Water (glasses) is calculated by dividing the Total Amount of Water (in litres) by 5.

Help Ms. Priya in writing the code to do the following :

- (i) When “Calculate Amount of Water” is clicked : 4
 - “Amount of Water (in litres)”, “Amount of Water (for Exercise)”, “Total Amount of Water (in litres)” and “Total Amount of Water (Glasses)” is calculated and displayed in respective Textfields.
- (ii) When ‘CLEAR’ button is clicked, all the textfields and radiobuttons should be cleared. 1
- (iii) When ‘Exit’ button is clicked, the application should close. 1



5. Consider the table given below. Write SQL queries for (i) to (viii) and output for (ix) and (x)

Table : Gym

REGID	NAME	PREWEIGHT	CURRWEIGHT	DOJ	GENDER	BRANCH
1001	SHEELA SIA	115	98	2017-09-02	F	ADARSH VIHAR
1002	FAWAD KHAN	92	80	2018-10-11	M	MODEL TOWN
1003	PAWAN SINGH	85	80	2018-02-03	M	NIRMAN NAGAR
1004	SUPRIYA ARORA	113	100	2018-01-16	F	MODEL TOWN
1005	AJOY BASU	67	75	2017-12-09	M	NIRMAN NAGAR
1006	TANMAY JACOB	100	71	2017-11-18	M	ADARSH VIHAR
1007	LAKSHMI VENKAT	98	95	2018-06-09	F	MODEL TOWN

Columns REGID stores Registration Id, PREWEIGHT stores weight of the person before joining Gym, CURRWEIGHT stores current weight, DOJ stores Date of Joining, BRANCH stores the branch of Gym where the person has enrolled.

- (i) To display names of members along with their previous and current weights who are in Model Town branch. 1
- (ii) To display all names of members, previous weight, current weight, Change in weight (i.e. how much increase from previous weight or decrease from previous weight, Decrease will be displayed with negative sign) 1
- (iii) To display BRANCH wise count of members in the Gym. (i.e. display the BRANCH and number of members in each BRANCH) 1
- (iv) To display names and date of joining of all the members who joined in the year 2018. 1
- (v) To display Names and Current weight of all the members in descending order of Current Weight. 1
- (vi) To display the names and date of joining of male members who have joined after 27th September 2018. 1
- (vii) To display Gender wise, maximum current weight (i.e. display the gender and maximum current weight of each gender) 1
- (viii) To display names and date of joining of members who have their names starting with 'S' and ending with 'a'. 1
- (ix) **SELECT BRANCH, MAX(PREWEIGHT) FROM Gym
GROUP BY Branch
HAVING COUNT(*) <= 2;** 1
- (x) **SELECT MAX(DOJ), MIN(DOJ) FROM Gym;** 1



6. (a) Write SQL query to create a table 'Product' with the following structure :

2

Field	Type	Constraint
ProductId	Integer	Primary key
PName	Varchar(50)	Not Null
Qty	Integer	
DatePurchase	Date	
SuppCode	Varchar(4)	

- (b) Consider the following tables TRANSPORTER and DRIVER and answer the questions that follow :

Table : TRANSPORTER

ORDERID	ITEM	TRANSPORTDATE	DESTINATION	DRIVERID
1120	TELEVISION	2019-03-19	MUMBAI	D103
1121	REFRIGERATOR	2019-04-12	UDAIPUR	D101
1122	TELEVISION	2019-05-06	MUMBAI	D101
1123	MICROWAVE	2019-05-07	KANPUR	D103
1124	FURNITURE	2019-06-15	KANPUR	D102

Table : DRIVER

DRIVERID	DRIVERNAME	DRIVERGRADE	PHONE
D101	Radhey Shyam	A	981234567
D102	Jagat Singh		981017897
D103	Timsy Yadav	B	
D104	Zoravar Singh	A	981107887

- (i) Can the column 'PHONE' be set as the primary key of the table DRIVER ? Give reason(s).

1

OR

Identify the Primary key in the table 'DRIVER'. Give reason(s) for your choice.

- (ii) In the PHONE column of "DRIVER" table, each phone number is taking same number of bytes (being padded with spaces to specified length) irrespective of the number of characters actually stored in that column. Which data type has been used for PHONE column ?

1

OR

Identify data type and size to be used for column DRIVERID.



- (c) With reference to the above given tables (in Q6 b), write commands in SQL for (i) to (iii) :
- (i) To display OrderId, Item being transported, DriverId and names of Drivers for all the orders that are being transported by drivers with 'A' grade. 2
 - (ii) To display DriverId, Names of drivers and Travel dates for drivers who are travelling after 1st March, 2019. 2
- OR**
- How many rows will be there in Cartesian product of the two tables in consideration here ?
- (iii) To display OrderId, DriverId and names of Drivers for all the orders that are transporting TELEVISION. 2

7. (a) As a part of e-Governance initiatives, now certificates issued to individuals can be stored in individual 'digital lockers' and can be accessed by Government/other departments. Write two ways in which Digilocker will help the students. 1
- (b) ABCshoppers.com is a company that sells goods online. It has employed a software engineer to develop and maintain their system. State one Computer Crime about which the Software engineer must be most concerned. 1
- (c) Ms. Smridhi is creating a form for "Second hand Cars Store" application. Help her to choose the most appropriate controls out of ListBox, ComboBox, TextField, TextArea, RadioButton, CheckBox, Label and Command Button for the following entries : 2

S.No.	Function
1.	To let the user enter NAME of car.
2.	To let the user enter Date of Arrival of car in the Store.
3.	To let the user choose one Condition out of the conditions : Excellent/Average/Bad
4.	To let the user enter Remarks about the car. It can be a short paragraph.