INFORMATICS PRACTICES

Time allowed : 3 hours   *Maximum Marks : 70*

Instructions :

(i)   **All** *questions are compulsory.*

(ii)   *Answer the questions after carefully reading the text.*

(iii)   *Q. 2 and Q.4 have to be answered with respect to Java Language.*

(iv)   *Q.3, Q.5 and Q.6 have to be answered with respect to MySQL.*

1. (a) Write the functions of the following pieces of network hardware : *2*

      (i)   Modem

      (ii)   Switch

  (b) Write two ways used to make sure that the data is secure and is available only to the intended and authorized persons in a network. *2*

  (c) Expand TCP/IP. Write the purpose of TCP/IP in communication of data on a network. *2*

  (d) Expand the following terms : *2*

      (i)   MAC Address

      (ii)   ODF

  (e) Explain in brief any one freedom offered by Open Source Software. Write one example for each of the following : *2*

      (i)   An Open Source Operating System

      (ii)   An Open Source Office Suite

2. (a) Write the data type of variables that should be used to store the following in Java : *1*

      (i)   Sales amount (of Sales) achieved by a Sales Person

      (ii)   Roll Number of Student

  (b) Distinguish between isSelected() and setSelected() methods of Java with the help of example. *1*

  (c) What will be displayed in jTextField1 and jTextField2 when the following code is executed ? *2*

```
int x,y,z,t;
x = 3;
y = 8;
z = x+y/8;
t = z++;
jTextField1.setText(""+z);
jTextField2.setText(""+t);
```

OR

2

What will be displayed in jTextField1 and jTextField2 when the following code is executed ?

```
int x,y,z,t;
t = 3;
z = 0;
do
{
  z = z+1;
}
  while (t>3);
jTextField1.setText(""+z);
jTextField2.setText(""+t);
```

(d) The following HTML code has error(s). Rewrite the correct code underlining corrections made. *2*

```
<ol type="A" begin="4">
   <li>List item 1</li>
   <li>List item 2</li>
   <li>List item 3</li>
<end>
```

OR

Expand XML. For what purpose is XML used ?

(e) Write the output that will be displayed on jLabel1 and jLabel2. *2*

```
String a,b,c,d,x;
a= "Keep";
b="your";
c="surroundings";
d="clean";
int e = b.length()/4+d.length()*2;
x=b+c+d;
x=a.concat(x);
jLabel1.setText("The value of e = "+e);
jLabel2.setText(x.toUpperCase());
```

(f) Write the output displayed in jTextField1 and jTextField2 when the following code is executed : *2*

```
char code;
int z;
z = 0;
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;
            }
jTextField1.setText(""+z);
jTextField2.setText(""+code);
```

OR

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

3. (a) In CHAR(10) and VARCHAR(10), what does the number 10 indicate ? *1*

(b) 'Employee' table has a column named 'CITY' that stores city in which each employee resides. Write SQL query to display details of all rows except those rows that have CITY as 'DELHI' or 'MUMBAI' or 'CHANDIGARH'. *1*

(c) 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 is not correct. Rewrite the correct statement. *2*

```
SELECT DISTINCT(COUNT STUDENTID) FROM RESULTS;
```

(d) Aman has used the following SQL command to create a table 'stu' :
```
CREATE TABLE stu
    (
        id INTEGER,
        name VARCHAR(100)
    );
```

Then, Aman enters the following SQL statements to enter 4 rows :
```
INSERT INTO stu VALUES (1, "abc");
INSERT INTO stu VALUES (2, "abc");
INSERT INTO stu VALUES (3, "bcd");
```

Write the output that will be produced by the following SQL statement : *2*
```
SELECT name, Count(*)
FROM stu
GROUP BY name;
```

(e) Write SQL statement to add a column "COUNTRY" with data type and size as VARCHAR(70) to the existing table named "PLAYER".

Is it a DDL or DML or TCL command ? *2*

(f) Table Student has the columns RNO and SCORE. It has 3 rows in it. Following two SQL statements were entered that produced the output (AVG(SCORE) as 45 and COUNT(SCORE) as 2) : *2*

```
(i)  AVG(SCORE)
```

```
(ii) COUNT(SCORE)
```

Data in SCORE column is same in two rows. What data is present in the SCORE column in the three rows ?

4. (a) What will displayed in jTextField1 when the following code is executed ? *1*

```
int x=3, y=6, z=0;
            if(x>3)
               z = z + 1;
            if((x<4)&&(y>6))
               z = z + 2;
            if(x>2 && y>=6)
               z = z + 3;
            if((x<3) || (y>6))
               z = z + 4;
jTxtFieldl.setText(""+z);
```

(b) Rewrite the following code after correcting errors. Underline the corrections made. *2*

```
int a, c;
30 = c;
4 = a;
while do (c>10)
    {
    a = = a + c;
    c = c-5;
       }
```

(c)   How many times will the following loop execute ?   *2*

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

<div align="center">**OR**</div>

How many times will the following loop execute ?

```
for (i = 2; i <=5;i++)
{
    z = i;
}
```

(d)   Write the output in jTextField1 when the following code is executed :   *2*

```
int k, n, sum = 0;
for (k = 2; k <=5; k++)
{
    n = k - 2 * 3;
    sum = sum + n;
}
jTextField1.setText(""+sum);
```

<div align="center">**OR**</div>

Write the output in jTextField1 when the following code is executed :

```
int k, n =0, sum = 0;
k = 2;
while (k<=5)
{
    n = k +4;
    sum = sum + n;
    k=k+2;
}
jTextField1.setText(""+n);
```

(e) Write the values of i and k after execution of the following code : *2*

```
int i,j,k;
i = 2;
j = 8;
k = 6;
do
{
    i = i + 4;
    k = k + i;
}
while (i < j);
```

(f) Ms. Supriya works as a programmer in a courier company, "ABC Packaging and Shipping Service" where she has designed a software to compute charges to be paid by the customers.

- Weight (in grams) of the parcel is entered by the user.
- Any one Category of parcel out of A/B/C is chosen by the user.
- Based on the Category selected, Transportation Charges (per gram) are computed according to the following criterion :

Category	Transportation Charges Per gram
A	₹ 2.00
B	₹ 3.00
C	₹ 5.00

- Insurance Charges is a flat ₹ 80.00 per parcel.
- **Total Transportation Charges = Transportation Charges Per gram * Weight in grams (of parcel) entered by the user.**
- **Total Charges = Total Transportation Charges + Insurance Charges.**

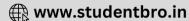Help Ms. Priya in writing the code to do the following :

(i) When **Calculate Charge**s button is clicked, **Insurance Charges,** T**ransportation Charges per gram, Total Transportation Charges** and **Total Charges** should be calculated and displayed in the respective text fields. *4*

(ii) When **'CLEAR'** button is clicked, all the textfields and radiobuttons should be cleared. *1*

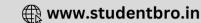(iii) When **'Exit'** button is clicked, the application should close. *1*

5. Consider the following table 'Transporter' that stores the order details about items to be transported. Write SQL commands for the statements (i) to (viii) and write output for SQL queries (ix) and (x).

Table : TRANSPORTER

ORDERNO	DRIVERNAME	DRIVERGRADE	ITEM	TRAVELDATE	DESTINATION
10012	RAM YADAV	A	TELEVISION	2019-04-19	MUMBAI
10014	SOMNATH SINGH		FURNITURE	2019-01-12	PUNE
10016	MOHAN VERMA	B	WASHING MACHINE	2019-06-06	LUCKNOW
10018	RISHI SINGH	A	REFRIGERATOR	2019-04-07	MUMBAI
10019	RADHE MOHAN		TELEVISION	2019-05-30	UDAIPUR
10020	BISHEN PRATAP	B	REFRIGERATOR	2019-05-02	MUMBAI
10021	RAM		TELEVISION	2019-05-03	PUNE

(i) To display names of drivers and destination city where TELEVISION is being transported. *1*

(ii) To display driver names and destinations where destination is not MUMBAI. *1*

(iii) To display the names of destination cities where items are being transported. There should be no duplicate values. *1*

(iv) To display details of rows that have some value in DRIVERGRADE column. *1*

(v) To display names of drivers, names of items and travel dates for those items that are being transported on or before 1st April 2019. *1*

(vi) To display the number of drivers who have 'MOHAN' anywhere in their names. *1*

(vii) To display the names of drivers, item names and travel dates in alphabetic (ascending) order of driver names. *1*

(viii) To display names of drivers whose names are three characters long. *1*

(ix) **SELECT ITEM, COUNT(*) FROM TRANSPORTER**
GROUP BY ITEM
HAVING COUNT(*) >1; *1*

(x) **SELECT MAX(TRAVELDATE) FROM TRANSPORTER WHERE DRIVERGRADE = 'A';** *1*

6. (a) Mr. Sen has to create a table named 'Employee' with Columns to store EmpID, Name, Designation, Age and Salary. EmpID is the Primary key and Name cannot be NULL.

Some of the rows that will be inserted are shown below.

101	Smita Kumar	Secretary	28	39500.00
102	Mani Scott	Programmer	32	45300.00
103	Firdaus Ali	Programmer II	45	67500.00

Write SQL query to create the above table with appropriate data types and sizes of columns.   *2*

OR

Ms. Rajshri is the Class Teacher of Class XII. She wants to create a table named 'Student' to store marks in different subjects of her class. Identify any 4 columns for the table along with their suitable data types.

(b) Consider the following tables **PARTICIPANT** and **ACTIVITY** and answer the questions that follow :

Table : PARTICIPANT

ADMNO	NAME	HOUSE	ACTIVITYCODE
6473	Kapil Shah	Gandhi	A105
7134	Joy Mathew	Bose	A101
8786	Saba Arora	Gandhi	A102
6477	Kapil Shah	Bose	A101
7658	Faizal Ahmed	Bhagat	A104

Table : ACTIVITY

ACTIVITYCODE	ACTIVITYNAME	POINTS
A101	Running	200
A102	Hopping bag	300
A103	Skipping	200
A104	Bean bag	250
A105	Obstacle	350

When the table "PARTICIPANT" was first created, the column 'NAME' was planned as the Primary key by the Programmer. Later a field ADMNO had to be set up as Primary key. Explain the reason.   *2*

OR

Identify data type and size to be used for column ACTIVITYCODE in table ACTIVITY.

(c) With reference to the above given tables (in Q6 b), write commands in **SQL** for (i) to (iii).

   (i) To display Activity Code along with number of participants participating in each activity (Activity Code wise) from the table Participant. *2*

OR

     How many rows will be there in Cartesian product of the two tables in consideration here ?

   (ii) To display Names of Participants, Activity Code, Activity Name in alphabetic ascending order of names of participants. *2*

   (iii) To display Names of Participants along with Activity Codes and Activity Names for only those participants who are taking part in Activities that have 'bag' in their Activity Names and Points of activity are above 250. *2*

7. (a) How does e-governance help in increasing Accountability (answerability of the Government to the people) ? Write 2 points. *2*

   (b) Write 2 precautions to be followed while doing Online shopping. *1*

   (c) Ms. Deepika of ABC School is creating a form for a Summer Camp application. Help her to choose the most appropriate controls from ListBox, ComboBox, TextField, TextArea, RadioButton, CheckBox, Label and Command Button for the following entries : *2*

S.No.	Function
1.	Let the user enter **NAME** of student
2.	Let the user enter **MOBILE NUMBER** of student
3.	Let the user choose one **TSHIRT** size out of the categories : XL / L / M / S
4.	Let the user select Activities out of Rock Climbing/ Mountain Biking/Zip Lining/Night Hike. More than one activity may be chosen.

General Instructions:

1. You are aware that evaluation is the most important process in the actual and correct assessment of the candidates. A small mistake in evaluation may lead to serious problems which may affect the future of the candidates, education system and the teaching profession. To avoid mistakes, it is requested that before starting evaluation, you must read and understand the spot evaluation guidelines carefully. **Evaluation is a 10 -12 days mission for all of us. Hence, it is necessary that you put in your best efforts in this process.**

2. Evaluation is to be done as per instructions provided in the Marking Scheme. It should not be done according to one's own interpretation or any other consideration. Marking Scheme should be strictly adhered to and religiously followed. **However, while evaluating, answers which are based on the latest information or knowledge and/or are innovative, they may be assessed for their correctness otherwise and marks be awarded to them.**

3. The Head-Examiner must go through the first five answer books evaluated by each evaluator on the first day, to ensure that evaluation has been carried out as per the instructions given in the Marking Scheme. The remaining answer books meant for evaluation shall be given only after ensuring that there is no significant variation in the marking of individual evaluators.

4. If a question has parts, please award marks on the right-hand side for each part. Marks awarded for different parts of the question should then be totaled up and written in the left-hand margin and encircled.

5. If a question does not have any parts, marks must be awarded in the left hand margin and encircled.

6. If a student has attempted an extra question, answer of the question deserving more marks should be retained and the other answer scored out.

7. No marks to be deducted for the cumulative effect of an error. It should be penalized only once.

8. A full scale of marks 0-70 has to be used. Please do not hesitate to award full marks if the answer deserves it.

9. Every examiner has to necessarily do evaluation work for full working hours i.e. 8 hours every day and evaluate 25 answer books per day.

10. Ensure that you do not make the following common types of errors committed by the Examiner in the past:-
    a. Leaving the answer or part thereof unassessed in an answer book.
    b. Giving more marks for an answer than assigned to it.
    c. Wrong transfer of marks from the inside pages of the answer book to the title page.
    d. Wrong question wise totaling on the title page.
    e. Wrong totaling of marks of the two columns on the title page.
    f. Wrong grand total.
    g. Marks in words and figures not tallying.
    h. Wrong transfer of marks from the answer book to online award list.
    i. Answers marked as correct, but marks not awarded. (Ensure that the right tick mark is correctly and clearly indicated. It should merely be a line. Same is with the X for incorrect answer.)
    j. Half or a part of answer marked correct and the rest as wrong, but no marks awarded.

11. While evaluating the answer books if the answer is found to be totally incorrect, it should be marked as (X) and awarded zero (0) Marks.

12. Any unassessed portion, non-carrying over of marks to the title page, or totaling error detected by the candidate shall damage the prestige of all the personnel engaged in the evaluation work as also of the Board. Hence, in order to uphold the prestige of all concerned, it is again reiterated that the instructions be followed meticulously and judiciously.

13. The Examiners should acquaint themselves with the guidelines given in the Guidelines for spot Evaluation before starting the actual evaluation.

14. Every Examiner shall also ensure that all the answers are evaluated, marks carried over to the title page, correctly totaled and written in figures and words.
15. The Board permits candidates to obtain a photocopy of the Answer Book on request in an RTI application and also separately as a part of the re-evaluation process on payment of the processing charges.

Specific Instructions:
[In Java]
● **Ignore case sensitivity for variable / identifiers**

[In SQL related questions]
● **Single quote ' ' as well as double quote " " should be accepted for text/character/date entries. For example: "AMAR" and 'amar' both are acceptable.**
● **Date entries should be accepted in all formats. For example: 'YYYY-MM-DD', 'YY-MM-DD', 'DD-Mon-YY', "DD/MM/YY", 'DD/MM/YY', "MM/DD/YY", 'MM/DD/YY' and {MM/DD/YY} are correct.**
● **Semicolon should be ignored for terminating the SQL statements.**
● **Ignore case sensitivity for commands.**
● **Ignore headers in output questions.**

1	(a)	Write the functions of the following pieces of network hardware : (i) Modem (ii) Switch	2
	Ans	Modem - It converts analog signals to digital signals and vice-versa . Switch - It connects several nodes to form a network and directs the received information only to the intended node.	
		(1 mark for each part) *Note: Full 1 mark to be awarded if only expansion of MODEM (Modulator Demodulator) is mentioned .*	
	(b)	Write two ways used to make sure that the data is secure and is available only to the intended and authorized persons in a network.	2
	Ans	(i) Assigning login name and password (ii) Installing firewall (iii)Assigning appropriate file permissions	
		(1 mark each for mentioning any two correct ways) *Note: Any other software or hardware methods ensuring network security to be accepted*	
	(c)	Expand TCP/IP. Write the purpose of TCP/IP in communication of data on a network.	2
	Ans	Transmission control Protocol/Internet Protocol. TCP/IP controls and manages data transmission over networks.	
		(½ mark for correct expansion of TCP) *(½ mark for correct expansion of IP)* *(1 mark for purpose of TCP/IP)*	
	(d)	Expand the following terms: (i) MAC Address (ii) ODF	2
	Ans	(i) MAC address-Media Access Control address (ii) ODF-Open document Format	

	(e)	Explain in brief any one freedom offered by Open Source Software. Write one example for each of the following: (i) An Open Source Operating System (ii) An Open Source Office Suite	2
	Ans	● Freedom to use software for any purpose ● Freedom to modify software ● Freedom to distribute copies of the software Examples of Open Source Operating System: BOSS ,Linux, Android,Ubuntu , FreeBSD, OpenBSD, NetBSD, DragonFly BSD, OpenSolaris, illumos, AuroraUX, Darwin, OpenDarwin, MINIX, FreeRTOS, FreeDOS, Haiku, House KolibriOS, MenuetOS, GNU, ReactOS, L4, Fiasco, Pistachio, Plan 9, AROS, Syllable, Inferno, NuttX, eCos, RTEMS, HelenOS, E/OS, TempleOS, Kali Linux , Google Chrome OS Example of Open Source Office Suite: Open Office , Neo Office , LibreOffice ,Adobe Open Office (Google Docs, Sheets, Slides)	
		(1 mark for mentioning for any one freedom) *(½ mark for mentioning any one correct example of Open Source Operating System)* *(½ mark for mentioning any one correct example of Open Source Office suite)*	
2	(a)	Write the data type of variables that should be used to store the following in Java : (i) Sales amount (of Sales) achieved by a Sales Person (ii) Roll Number of Student	1
| | Ans | ```
i)    float /double / int / long
ii)  int / byte / short / long
``` | |
		(½ mark each for both parts) *Note: String data type to be accepted for Roll number of student*	
	(b)	Distinguish between isSelected() and setSelected() methods of Java with the help of example.	1

	Ans	Example:
		```rb1.setSelected(true);```
		```boolean b=rb1.isSelected();```
		Difference :
		```isSelected():``` Returns true if the component is checked otherwise returns false
		```setSelected():``` Checks or unchecks component according to boolean value true or false.	

		(1 mark for correct difference) *Note: Full 1 mark to be awarded if either example or explanation is correct.*	
| | (c) | What will be displayed in jTextField1 and jTextField2 when the following code is executed?<br>```
int x,y,z,t;
x=3;
y=8;
``` | 2 |

|  |  | ```
jTextField1.setText(""+z);
jTextField2.setText(""+t);
``` |  |
|---|---|---|---|
	Ans	The content of jTextField1 is 5 The content of jTextField2 is 4	
		(1 mark each for each correct output)	
		OR	
| | | What will be displayed in jTextField1 and jTextField2 when the following code is executed?<br><br>```
int  x,y,z,t;
t=3;
z=0;
do
{
    z=z+1;
}
    while(t>3);
jTextField1.setText(""+z);
jTextField2.setText(""+t);
``` | |
| | **Ans** | The content of jTextField1 is 1
The content of jTextField1 is 3 | |
| | | *(1 mark each for each correct output)* | |
| (d) | | The following  HTML code has error(s). Rewrite the correct code underlining corrections made.<br>```
<ol type="A" begin="4">
  <li>List item 1</li>
  <li>List item 2</li>
  <li>List item 3</li>
<end>
``` | 2 |
| | Ans | ```
<ol type="A" start="4">
  <li>List item 1 </li>
  <li>List item 2 </li>
  <li>List item 3 </li>
</ol>
```<br>OR<br>```
<ol type="A" start="4">
  <li>List item 1
  <li>List item 2
  <li>List item 3
</ol>
``` | |
		1 mark each for identifying and correcting both errors *Note : Only 1 mark to be awarded if errors are only identified*	
		OR	
		Expand XML. For what purpose is XML used?	
	Ans	XML stands for eXtensible Markup Language. Purpose : XML is used to describe data	

		(1 mark for writing the expanded form) *(1 mark for correct purpose)*	
| | (e) | Write the output that will be displayed on jLabel1 and jLabel2.<br><br>```
String a,b,c,d,x;
a="Keep";
b="your";
c="surroundings";
d="clean";
int e = b.length()/4+d.length()*2;
x=b+c+d;
x=a.concat(x);
jLabel1.setText("The value of e = "+e);
jLabel2.setText(x.toUpperCase());
``` | 2 |
| | Ans | ```
jLabel1 - The value of e = 11
jLabel2 - KEEPYOURSURROUNDINGSCLEAN
``` | |
| | | *(1 mark each for each correct output)* | |
| | (f) | **Write the output displayed in jTextField1 and jTextFiled2 when the following code is executed:**<br><br>```
char code;
int z;
z = 0;
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;
}
jTextField1.setText(""+z);
jTextField2.setText(""+code);
``` | 2 |
| | Ans | ```
The content of jTextField1 is 3
The content of jTextField2 is w
``` | |
		(1 mark each for each correct output)	
		OR	
		What happens if break statement is omitted with a case in a switch statement?	
	Ans	If break is omitted control moves to the next case / statement.	
		(2 marks for correct answer) *Note: Full 2 marks to be awarded if explained with an example or Fall through is mentioned .*	
3	(a)	In **CHAR(10)** and **VARCHAR(10)**, what does the number 10 indicate?	1
	Ans	It indicates the maximum number of characters that can be stored . OR It indicates the Size of the column.	

(b)	'Employee' table has a column named 'CITY' that stores city in which each employee resides. Write SQL query to display details of all rows except those rows that have CITY as 'DELHI' or 'MUMBAI' or 'CHANDIGARH'.		1
| Ans | ```
SELECT * FROM Employee
WHERE CITY NOT IN ('DELHI','MUMBAI','CHANDIGARH');


OR


SELECT * FROM Employee
WHERE CITY <> 'DELHI'  AND CITY <> 'MUMBAI'
AND CITY <> 'CHANDIGARH' ;


OR


SELECT * FROM Employee
WHERE NOT CITY  IN ('DELHI','MUMBAI','CHANDIGARH');
``` | | |
| | *(½ mark for Select)*
(½ mark for where clause)
Note: && to be considered instead of AND , != to be considered instead of <>) | | |

(c)	Consider the following table : **Table : RESULTS**	2

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 is not correct. Rewrite the correct statement.
```
SELECT DISTINCT (COUNT STUDENTID) FROM RESULTS;
```

Ans	`SELECT COUNT (DISTINCT STUDENTID) FROM RESULTS;`	
	(1 mark for the correct statement)	
| (d) | Aman has used the following SQL command to create a table 'stu':<br>```
CREATE TABLE stu
(
   id INTEGER,
``` | 2 |

		Then,Aman enters the following SQL statements to enter 4 rows:	

		`INSERT INTO stu VALUES(1,"abc");`
		`INSERT INTO stu VALUES(2,"abc");`
		`INSERT INTO stu VALUES(3,"bcd");`	

		Write the output that will be produced by the following SQL statement :	

		`SELECT name, Count(*)`
		`FROM stu`
		`GROUP BY name;`	

Ans			

NAME	COUNT(*)
abc	2
bcd	1

(1 mark each for line of output)
Note : Full 2 marks to be awarded if question is attempted or error mentioned

	(e)	Write SQL command to add a column "COUNTRY" with data type and size as VARCHAR(70) to the existing table named "PLAYER". Is it a DDL or DML or TCL command?	2
Ans		`ALTER TABLE PLAYER ADD COUNTRY VARCHAR(70);` It is a DDL command	
		(½ mark for ALTER TABLE) *(½ mark for ADD)* *(1 mark for identifying DDL command)*	

	(f)	Table student has the columns RNO and SCORE. It has 3 rows in it. Following two SQL statements were entered that produced the output (AVG(SCORE) as 45 and COUNT(SCORE) as 2):
		`(i)  AVG(SCORE)`
		`(ii)COUNT(SCORE)`
		Data in SCORE column is same in two rows. What data is present in the SCORE column in the three rows ?
			2

Ans		`45`
		`45`
		`NULL`	

		(1 mark for mentioning 45 in rows) *(1 mark for mentioning NULL)* *Note : 1 mark to be awarded if "two SQL statements" not provided in question is mentioned .*	

4	(a)	What will displayed in jTextField1 when the following code is executed?	1

```
int x=3,y=6,z=0;
 if(x>3)
   z = z + 1;
 if((x<4) && (y>6))
   z = z + 2;
 if(x>2 && y>=6)
   z = z + 3;
 if((x<3)||(y>6))
   z = z + 4;
 jTxtField1.setText(""+z);
```

Ans	3

(1 mark for correct answer)
Note: Full 1 mark to be awarded if error "jTextField1 is not present in the given code" is mentioned.

(b)	Rewrite the following code after correcting errors. Underline the corrections made.	2

```
int a, c;
30 = c;
4 = a;
while do(c>10)
{
  a = = a + c;
  c = c - 5;
}
```

Ans

```
int a, c;
c=30;
a=4;
do
{
  a = a + c;
  c = c - 5 ;
} while (c>10);
```

OR

```
int a, c;
c=30;
a=4;
while (c>10)
{
  a = a + c;
  c = c - 5;
}
```

(½ mark each for identifying and correcting four errors)
(Note : 1 mark for only identification of 4 errors)

	(c)	How many times will the following loop execute?	2
| | | ```
int K =7;
int I = -2;
do
{
    I=I+2;
    K=K-1;
}
while(I<=K);
``` | |
Ans	4 times		
	(2 marks for correct answer)		
		OR	
	How many times will the following loop execute?		
| | ```
for(i=2;i<=5;i++)
{
    z = i;
}
``` | | |
Ans	*4 times*		
	(2 marks for correct answer) *Note : Only 1 mark for mentioning data type of variable not provided*		
	(d)	Write the output in jTextField1 when the following code is executed:	2
| | | ```
int k, n, sum=0;
for(k = 2; k <=5; k++)
{
    n = k - 2 * 3;
    sum = sum + n;
}
jTextField1.setText(""+sum);
``` | |
Ans	-10		
	(2 marks for correct answer)		
		OR	
	Write the output in jTextField1 when the following code is executed:		
| | ```
int k, n=0, sum=0;
k = 2;
while (k<=5)
{    n = k + 4;
     sum = sum + n;
     k = k + 2;
}
jTextField1.setText(""+n);
``` | | |
| Ans | 8 | | |

(e)	Write the values of i and k after the execution of the following code:		2

```
int i, j, k;
i = 2;
j = 8;
k = 6;
do
{
  i = i + 4;
  k = k + i;
}
 while(i<j);
```

Ans	`i=10` `k=22`

(1 mark for each correct value)

(f)	Ms. Supriya works as a programmer in a courier company, "ABC Packaging and Shipping Service" where she has designed a software to compute charges to be paid by the customers. ● Weight(in grams) of the parcel is entered by the user. ● Any one Category of parcel out of A/B/C is chosen by the user. ● Based on the Category selected, Transportation Charges(per gram) are computed according to the following criterion:	4

Category	Transportation Charges Per gram
A	₹ 2.00
B	₹ 3.00
C	₹ 5.00

● Insurance Charges is a flat ₹ 80.00 per parcel
● **Total Transportation Charges= Transportation Charges Per gram * Weight in grams (of parcel) entered by the user.**
● **Total Charges = Total Transportation Charges + Insurance Charges.**
Help Ms. Priya in writing the code to do the following:
(i) When **Calculate Charges** button is clicked, **Insurance Charges, Transportation Charges per gram, Total Transportation Charges** and **Total Charges** should be calculated and displayed in the respective text fields.

| Ans (i) | ```
double wt, tc=0.0, ic=0.0,ttc=0.0, totc=0.0;
wt=Double.parseDouble(jTextField1.getText());
if(jRadioButton1.isSelected())
  tc=2.00;
else if(jRadioButton2.isSelected())
  tc=3.00;
else
  tc=5.00;
jTextField2.setText(""+tc);
ic=80.00;
jTextField3.setText(""+ic);
ttc=tc*wt;
``` |

```
totc=ttc+ic;
jTextField5.setText(""+totc);
```

(½ mark for correct use of if statement for Radiobutton/CheckBox/Combobox)
(½ mark for assigning correct value to variable tc)
(½ mark for assigning correct value to variable ic)
(½ mark for calculating total transportation charges)
(½ mark for calculating total charges)
(½ mark for displaying insurance charges , transportation charges)
(½ mark for displaying total transportation charges)
(½ mark for displaying total charges)

Note :
- *2 Marks for any valid/syntactically correct if/switch condition*
- *2 marks for displaying insurance charges, transportation charges , total transportation charges and total charges using ANY appropriate swing control or display methods .*

	(ii)	When '**CLEAR**' button is clicked, all the textfields and radiobuttons should be cleared.	1

Ans
```
jTextField1.setText("");
jTextField2.setText("");
jTextField3.setText("");
jTextField4.setText("");
jTextField5.setText("");
jRadioButton1.setSelected(false);
jRadioButton2.setSelected(false);
jRadioButton3.setSelected(false);
```

OR

```
buttonGroup1.clearSelection();
```

(½ mark for clearing any text field)
(½ mark for clearing radiobutton)
Note : NULL in place of "" should be accepted for clearing text field.

	(iii)	When '**Exit**' button is clicked the application should close.	1

Ans | System.exit(0);

(1 mark for correct answer)

| 5. | | Consider the following table 'Transporter' that stores the order details about items to be transported. Write SQL commands for the statements (i) to (viii) and write output for SQL queries (ix) and (x) | |

Table : TRANSPORTER

ORDERNO	DRIVERNAME	DRIVERGRADE	ITEM	TRAVELDATE	DESTINATION
10012	RAM YADAV	A	TELEVISION	2019-04-19	MUMBAI
10014	SOMNATH SINGH		FURNITURE	2019-01-12	PUNE
10016	MOHAN VERMA	B	WASHING MACHINE	2019-06-06	LUCKNOW
10018	RISHI SINGH	A	REFRIGERATOR	2019-04-07	MUMBAI
10019	RADHE MOHAN		TELEVISION	2019-05-30	UDAIPUR
10020	BISHEN PRATAP	B	REFRIGERATOR	2019-05-02	MUMBAI
10021	RAM		TELEVISION	2019-05-03	PUNE

(i)	To display names of drivers and destination city where TELEVISION is being transported.		1

Ans	`SELECT DRIVERNAME, DESTINATION`
	`FROM TRANSPORTER`
	`WHERE ITEM="TELEVISION";`		

	(½ mark for **SELECT***)* *(½ mark for* **WHERE***)*		
(ii)	To display driver names and destinations where destination is not MUMBAI.		1

Ans	`SELECT DRIVERNAME, DESTINATION`
	`FROM TRANSPORTER`
	`WHERE DESTINATION <> "MUMBAI";`
	
	OR
	
	`SELECT DRIVERNAME, DESTINATION`
	`FROM TRANSPORTER WHERE DESTINATION != "MUMBAI";`
	
	OR
	
	`SELECT DRIVERNAME, DESTINATION`
	`FROM TRANSPORTER`
	`WHERE DESTINATION NOT IN ("MUMBAI");`
	
	OR
	
	`SELECT DRIVERNAME, DESTINATION`
	`FROM TRANSPORTER`
	`WHERE NOT DESTINATION = "MUMBAI";`		

	(½ mark for **SELECT***)* *(½ mark for* **WHERE***)*		
(iii)	To display the names of destination cities where items are being transported. There should be no duplicate values.		1
Ans	`SELECT DISTINCT(DESTINATION)` `FROM TRANSPORTER;`		
	(½ mark for **SELECT***)* *(½ mark for* **DISTINCT***)*		
(iv)	To display details of rows that have some value in DRIVERGRADE column.		1
Ans	`SELECT * FROM TRANSPORTER` `WHERE DRIVERGRADE IS NOT NULL;`		
	(½ mark for **SELECT***)* *(½ mark for* **WHERE***)*		
(v)	To display names of drivers, names of items and travel dates for those items that are being transported on or before 1ˢᵗ April 2019.		1

Ans	`SELECT DRIVERNAME, ITEM, TRAVELDATE`
	`FROM TRANSPORTER`
	`WHERE TRAVELDATE <= "2019-04-01";`		

	(½ mark for **SELECT***)* *(½ mark for WHERE*)		

	vi)	To display the number of drivers who have 'MOHAN' anywhere in their names.	1

	Ans	`SELECT COUNT(DRIVERNAME)`
		`FROM TRANSPORTER`
		`WHERE DRIVERNAME LIKE "%MOHAN%";`	

		(½ mark for SELECT*)* *(½ mark for* WHERE)	
	vii)	To display the names of drivers, item names and travel dates in alphabetic(ascending) order of driver names.	1

	Ans	`SELECT DRIVERNAME, ITEM, TRAVELDATE`
		`FROM TRANSPORTER`
		`ORDER BY DRIVERNAME;        [OR   ORDER BY DRIVERNAME ASC;]`	

		(½ mark for SELECT*)* *(½ mark for* ORDER BY)	
	viii)	To display names of drivers whose names are three characters long	1

	Ans	`SELECT DRIVERNAME`
		`FROM TRANSPORTER`
		`WHERE DRIVERNAME LIKE "_ _ _";`
		OR
		`SELECT DRIVERNAME`
		`FROM TRANSPORTER`
		`WHERE LENGTH(DRIVERNAME) = 3 ;`	

		(½ mark for SELECT*)* *(½ mark for* WHERE)	

	ix)	`SELECT ITEM,COUNT(*) FROM TRANSPORTER`
		`GROUP BY ITEM`
		`HAVING COUNT(*) > 1;`
			1

	Ans	`ITEM              COUNT(*)`
		`TELEVISION        3`
		`REFRIGERATOR      2`	

		(½ mark for each correct line of output)	
	(x)	`SELECT MAX(TRAVELDATE)` `FROM TRANSPORTER WHERE DRIVERGRADE='A';`	1
	Ans	`MAX(TRAVELDATE)` `2019-04-19`	
		(1 mark for correct answer)	
6	(a)	Mr. Sen has to create a table named 'Employee' with Columns to store EmpID, Name ,Designation, Age and Salary.EmpID is the Primary Key and Name cannot be NULL. Some of the rows that will be inserted are shown below . 101 Smita Kumar Secretary 28 39500.00 102 Mani Scott Programmer 32 45300.00 103 Firdaus Ali Programmer II 45 67500.00	2

		Write SQL query to create the above table with appropriate data types and sizes of columns	
| | Ans | ```
CREATE TABLE Employee
(EmpID        INTEGER PRIMARY KEY,
 Name         VARCHAR(20) NOT NULL ,
 Designation  VARCHAR(20),
 Age          INTEGER ,
 Salary       DECIMAL(8,2)
);
``` | |
	Ans	*(½ mark for CREATE TABLE)* *(½ mark for PRIMARY KEY constraint)* *(½ mark for NOT NULL constraint)* *(½ mark for Column Names with Data Types)* *Note :* *INT in place of INTEGER to be accepted* *CHAR in place of VARCHAR to be accepted* *FLOAT in place of DECIMAL to be accepted* *Any appropriate size of columns to be accepted*	
		OR	
		Ms.Rajshri is the class teacher of class XII .She wants to create a table named 'Student' to store marks in different subjects of her class. Identify any 4 columns for the table along with their suitable data types .	
	Ans	Admno INT/CHAR / VARCHAR Name CHAR / VARCHAR Mark1 DECIMAL / FLOAT / INT / INTEGER Mark2 DECIMAL / FLOAT / INT / INTEGER	
		(½ mark for each column name and data type) *(1 mark if four column names are mentioned without mentioning data type)* *Note : Any other appropriate column names to be accepted* * Column size may be ignored*	
(b)		Consider the following tables **PARTICIPANT** and **ACTIVITY** and answer the questions that follow:	2

Table: PARTICIPANT

ADMNO	NAME	HOUSE	ACTIVITYCODE
6473	Kapil Shah	Gandhi	A105
7134	Joy Mathew	Bose	A101
8786	Saba Arora	Gandhi	A102
6477	Kapil Shah	Bose	A101
7658	Faizal Ahmed	Bhagat	A104

Table: ACTIVITY

ACTIVITYCODE	ACTIVITYNAME	POINTS
A101	Running	200
A102	Hopping bag	300
A103	Skipping	200
A104	Bean bag	250

		When the table "PARTICIPANT" was first created, the column 'NAME' was planned as the Primary key by the Programmer. Later a field ADMNO had to be set up as Primary key. Explain the reason .	
	Ans	NAME column has duplicate values ,cannot be considered as Primary key, therefore Admno is to be considered as Primary Key.	
		(2 marks for the correct reason)	
		OR	
		Identify data type and size to be used for column ACTIVITYCODE in table ACTIVITY.	
	Ans	Data type : CHAR / VARCHAR *Size : 4*	
		(1 mark for correct data type) *(1 mark for mentioning correct size)* *Note: For the Size, any value more than 4 is also to be accepted.*	
(c)		With reference to the above given tables (in Q6 b), write commands in SQL for (i) to (iii)	
(i)		To display Activity Code along with number of participants participating in each activity (Activity Code wise) from the table Participant.	2

	Ans	`SELECT ACTIVITYCODE,COUNT(*)`
		 `FROM PARTICIPANT`
		 `GROUP BY ACTIVITYCODE;`
		
		 OR
		
		 `SELECT CONCAT(ACTIVITYCODE,COUNT(*))`
		 `FROM PARTICIPANT`
		 `GROUP BY ACTIVITYCODE;`	

		(½ mark for **SELECT***)* *(½ mark for* **FROM***)* *(½ mark for correct use of* **GROUP BY***)* *(½ mark for correct use of* **COUNT()***)*	
		OR	
		How many rows will be there in the cartesian product of the two tables in consideration here ?	
	Ans	*Number of Rows:25*	
		(2 marks for correct answer)	
(ii)		To display Names of Participants , Activity Code, Activity Name in alphabetic ascending order of names of participants.	2

	Ans	`SELECT NAME , PARTICIPANT.ACTIVITYCODE , ACTIVITYNAME`
		 `FORM PARTICIPANT , ACTIVITY`
		 `WHERE PARTICIPANT.ACTIVITYCODE = ACTIVITY.ACTIVITYCODE`
		 `ORDER BY NAME ;`
		
		 OR
		
		 `SELECT NAME , P.ACTIVITYCODE , ACTIVITYNAME`
		 `FORM PARTICIPANT P, ACTIVITY A`
		 `WHERE P.ACTIVITYCODE = A.ACTIVITYCODE`	

		OR	
| | | ```
SELECT PARTICIPANT.NAME , PARTICIPANT.ACTIVITYCODE ,
ACTIVITY.ACTIVITYNAME
FORM PARTICIPANT , ACTIVITY
WHERE PARTICIPANT.ACTIVITYCODE = ACTIVITY.ACTIVITYCODE
ORDER BY PARTICIPANT.NAME ;
```<br>**OR**<br>```
SELECT P.NAME , P.ACTIVITYCODE , A.ACTIVITYNAME
FORM PARTICIPANT P , ACTIVITY A
WHERE P.ACTIVITYCODE = A.ACTIVITYCODE
ORDER BY P.NAME ;
``` | |
| | | *(½ mark for SELECT)*
(½ mark for FROM)
(½ mark for correct use of JOIN)
(½ mark for correct use of ORDER BY) | |
| (iii) | | To display Names of Participants along with Activity Codes and Activity Names for only those participants who are taking part in Activities that have 'bag' in their Activity Names and Points of activity are above 250. | 2 |
| | Ans | ```
SELECT NAME , PARTICIPANT.ACTIVITYCODE , ACTIVITYNAME
FROM PARTICIPANT , ACTIVITY
WHERE PARTICIPANT.ACTIVITYCODE = ACTIVITY.ACTIVITYCODE AND
POINTS > 250 AND ACTIVITYNAME LIKE '%bag%';
```<br>**OR**<br>```
SELECT NAME , P.ACTIVITYCODE , ACTIVITYNAME
FROM PARTICIPANT P, ACTIVITY A
WHERE P.ACTIVITYCODE = A.ACTIVITYCODE
       AND POINTS > 250 AND ACTIVITYNAME LIKE '%bag%';
```<br>**OR**<br>```
SELECT PARTICIPANT.NAME , PARTICIPANT.ACTIVITYCODE ,
ACTIVITY.ACTIVITYNAME
FROM PARTICIPANT , ACTIVITY
WHERE PARTICIPANT.ACTIVITYCODE = ACTIVITY.ACTIVITYCODE AND
ACTIVITY.POINTS > 250 AND ACTIVTY.ACTIVITYNAME LIKE '%bag%';
```<br>**OR**<br>```
SELECT P.NAME , P.ACTIVITYCODE , A.ACTIVITYNAME
FROM PARTICIPANT P, ACTIVITY A
WHERE P.ACTIVITYCODE = A.ACTIVITYCODE AND
A.POINTS > 250 AND A.ACTIVITYNAME LIKE '%bag%';
``` | |
| | | *(½ mark for SELECT)*
(½ mark for FROM)
(½ mark for correct use of join)
(½ mark for correct use of any one condition) | |

7	(a)	How does e-governance help in increasing Accountability (answerability of the Government to the people)? Write 2 points.	2
	Ans	1. Transparency of Government processes, policies and decisions 2. Awareness about new policies and facilities being offered by the Government. 3. Date and time of every transaction is automatically recorded for which the Government is accountable. 4. Practices like influences and bribing are reduced	
		(1 mark each for any two valid points)	
	(b)	Write 2 precautions to be followed while doing Online Shopping.	1
	Ans	1) Verify authenticity of the website / vendor 2) Check the product details and past reviews 3) Verify the payment gateway provided by the website.	
		(½ mark each for any two valid points)	
	(c)	Ms. Deepika of ABC School is creating a form for a Summer Camp application. Help her to choose the most appropriate controls from ListBox , ComboBox, TextField, TextArea, RadioButton, CheckBox, Label and Command Button for the following entries:	2

S.No.	Function
1.	Let the user enter **NAME** of student
2.	Let the user enter **MOBILE NUMBER** of student
3.	Let the user choose one **TSHIRT** size out of the categories : XL / L / M / S
4.	Let the user select Activities out of Rock Climbing / Mountain Biking / Zip Lining / Night Hike . More than one activity may be chosen .

Ans

S.No.	Function
1	Text Field
2	Text Field
3	RadioButton/ComboBox
4	ListBox/CheckBox

(½ mark for each correct answer)