Roll No. | | | | | | | |

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 :

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

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

1. (a) ABC Company wants to link its computers in the Head office in New Delhi to its office in Sydney. Name the type of Network that will be formed. Which Communication media should be used to form this Network ? *2*

(b) Which of the following is/are ***not*** communication media ?

(i) Microwaves

(ii) Optical Fiber cable

(iii) Node

(iv) Radio waves

Identify which of the above mentioned communication media are Wired media and which ones are Wireless media. *2*

(c) Write two examples each of software in the following categories : *2*

(i) Open Source Operating System

(ii) Open Source Web Browser

(d) Expand the following terms : *2*

(i) GSM

(ii) IP

(e) Name the devices : *2*

(i) This device constantly looks at all the data entering and exiting your connection. It can block or reject data in response to an established rule.

(ii) This device connects multiple nodes to form a network. It redirects the received information only to the intended node(s).

2. (a) Identify the invalid variable names. Sate the reason if invalid. *1*

(i) Marks Unit

(ii) Product_1

(iii) Sales123

(iv) 2Marks

(b) Write the data type of variables that should be used to store : *1*

(i) Marks of students

(ii) Grades of students (Grade can be 'A' or 'B' or 'C')

(c) Write examples of any two properties and any two methods of jButton component. *2*

(d) Write the purpose of HTML. Distinguish between <P> tag and <BR> tag. *2*

(e) Distinguish between ComboBox and ListBox. When would you prefer using them over Radiobutton and Checkbox ? *2*

(f) Rewrite the following code using switch statement : *2*

```
        if (code == 'A')
          allowance = 3500;
else if (code =='B')
          allowance= 3200;
else
          allowance =2000;
```

3. (a) What is MySQL used for ? Abhay wants to start learning MySQL. From where can he obtain the MySQL software ? *1*

(b) In the table "Student", Priya wanted to increase the Marks (Column Name:Marks) of those students by 5 who have got Marks below 33. She has entered the following statement :

```
SELECT Marks+5 FROM Student WHERE Marks<33;
```

Identify errors (if any) in the above statement. Rewrite the correct SQL statement. *1*

(c) (i) Name the Data type that should be used to store AccountCodes like "A1001" of Customers. *1*

(ii) Name two Data types that require data to be enclosed in quotes. *1*

(d) Given the table 'Player' with the following columns :

Table : Player

PCODE	**POINTS**
1	50
2	NULL
3	40

Write the output of the following statements : *2*

(i)
```
SELECT AVG(POINTS)
FROM Player;
```

(ii)
```
Select COUNT(POINTS) FROM Player;
```

(e) 'Class' table has columns RNO and NAME.

The following statements are executed :

```
SET AUTOCOMMIT = 0;
INSERT INTO CLASS VALUES(5,'Rajiv');
COMMIT;
UPDATE CLASS SET NAME='Rajeev' WHERE ID=5;
SAVEPOINT A;
INSERT INTO CLASS VALUES(6,'Chris');
SAVEPOINT B;
INSERT INTO CLASS VALUES(7,'Feroze');
SELECT * FROM CLASS;
ROLLBACK TO B;
SELECT * FROM CLASS;
```

What will be the output of both the above given SELECT statements ? *2*

(f) Name SQL Single Row functions (for each of the following) that *2*

(i) returns a number.

(ii) returns lowercase letters.

(iii) returns names of days. For example : "Monday", "Tuesday".

(iv) returns weekday number. For example : 1 for Sunday, 2 for Monday, 3 for Tuesday.

4. (a) Identify the error in the following code : *1*

```
     switch(c)
{
case 9.0 : a= a+2;
           break;
case 8.0 : a=a+3;
           break;
}
```

(b) What values will be displayed in **JOptionPane** when the following code is executed ? *2*

```
int a=5, b = 2;
        while (a < 20)
        {
            a = a + b;
            b = a – b;
JOptionPane.showMessageDialog(null,a);
        }
```

(c) Write the code given below using 'for' loop instead of 'while' loop : *2*

```
int i=1;
        while(i<=5)
        {
            if(i * i == 4)
                jTextField1.setText(""+i);
        i=i+1;
        }
```

(d) Write the value that will be stored in variable **a** after execution of the following code if : *2*

(i) initial value of **a** is 8.

(ii) initial value of **a** is 10.

```
int b = 9;
if (a > b)
    a=a+5;
  a=a+2;
```

(e) What will be the values of **i** and **z** after the following code is executed : *2*

```
int i = 0;
int z = 10;
           do
           {
            i = i+2;
            z--;
           }
        while (i<10);
```

(f) Ms. Priya works as a programmer in "Avon Education" where she has designed a software to compute fee charges to be paid by the students. A screenshot of the same is shown below :

- Name of the student is entered by the user.
- Any one Course out of Pharmacy, Architecture and Arts & Design is chosen by the user.
- If the student is eligible for Concession, the required checkbox is selected by the user.

- Based on the course selected, Fee Per Quarter is displayed in the appropriate textfield according to the following criterion :

Course	**Fee Per Quarter**
Pharmacy	2000.00
Architecture	2500.00
Arts & Design	2300.00

- If the student is eligible for Concession, a concession of 7% of Fee per quarter is calculated as the concession amount, otherwise concession amount is 0.

- Fee to be paid is the Fee per quarter with the concession amount (if any) deducted from it.

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

(i) When 'Calculate Charges' button is clicked, 'Fee per quarter', 'Concession Amount', 'Fee to be Paid' should be calculated and displayed in the respective text fields. *4*

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

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

5. Consider the following table 'Furniture'. Write SQL commands for the statements (i) to (viii) and write output for SQL queries (ix) and (x).

Table : Furniture

FCODE	**NAME**	**PRICE**	**MANUFDATE**	**WCODE**
10023	Coffee table	4000	19-DEC-2016	W03
10001	Dining table	20500	12-JAN-2017	W01
10012	Sofa	35000	06-JUN-2016	W02
10024	Chair	2500	07-APR-2017	W03
10090	Cabinet	18000	31-MAR-2015	W02

(i) To display FCODE, NAME and PRICE of items that have Price less than ₹ 5,000. *1*

(ii) To display NAMES and PRICE of those Furniture Items that have 'table' anywhere in their names. *1*

(iii) To display WCode of Furniture Items. There should be no duplicate values. *1*

(iv) To display the NAMES and PRICE increased by 500.00 of all the furniture items. (Price should only be displayed as increased; there should be no increase in the data in the table) *1*

(v) To display FCODE and NAME of each Furniture Item in descending order of FCODE. *1*

(vi) To display the details of all the Furniture Items which have Manufacturing date (MANUFDATE) between 01-JAN-2016 and 15-JUN-2017 (inclusive of both the dates). *1*

(vii) To display the average PRICE of all the Furniture Items, which are made of Wood with WCODE as W02. *1*

(viii) To display WCODE wise, WCODE and the highest price of Furniture Items. *1*

(ix) **`SELECT SUM(PRICE) FROM Furniture WHERE WCODE='W03';`** *1*

(x) **`SELECT COUNT(DISTINCT PRICE) FROM Furniture;`** *1*

6. (a) Write SQL query to create a table 'Inventory' with the following structure : *2*

Field	**Type**	**Constraint**
MaterialId	Integer	Primary key
Material	Varchar (50)	NOT NULL
Category	Char	
DatePurchase	Date	

(b) Consider the following tables PATIENT and TEST and answer the questions that follow :

Table : PATIENT

PCODE	NAME	PHONE	DTADMIT	TESTID
6473	Amit Sharma	912356899	19-JUN-2017	T102
7134	Rose Mathew	886744536	12-NOV-2017	T101
8786	Tina Sharma Arora	889088765	06-DEC-2017	T102
6477	Vijay Shah	714567445	07-DEC-2017	T502
7658	Venkat Fazal	865545343	31-DEC-2017	T101

Note : NAME holds the Names of patients.

DTADMIT holds Dates on which a patient was admitted to hospital.

TESTID holds Ids of Medical tests done on patients.

Table : TEST

TESTID	TESTNAME	COST
T101	Platelet Count	200.00
T102	Hemogram	190.00
T301	Malaria Detection	350.00
T502	Glucose Test	150.00

Name the Primary keys in both the tables and foreign key in 'PATIENT' table.
State the reason for your choice. *2*

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

(i) To display Names of Patients, TESTID and Test names for those Patients who were admitted between '01-DEC-2017' and '15-DEC-2017' (both dates inclusive). *2*

(ii) To display Names of Patients, Test names and Cost of Test for those Patients who have "Sharma" in their names. *2*

(iii) To increase the cost of those tests in the table "TEST" by ₹ 50·00 that have cost below ₹ 200·00 *2*

7. (a) How does e-governance help in building trust between the Government and citizens ? *2*

(b) How can e-learning help students learn at their own pace ? *1*

(c) Ms. Cathy is creating a form for Vidya University Sports Council 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.	To let the user enter NAME
2.	To let the user enter MOBILE NUMBER
3.	To let the user choose one PROFESSION out of the categories : Teaching/Non-Teaching/Research Scholar
4.	To let the user select facilities out of Gym, Yoga, Table Tennis, Badminton and Aerobics. More than one facility may be chosen.

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