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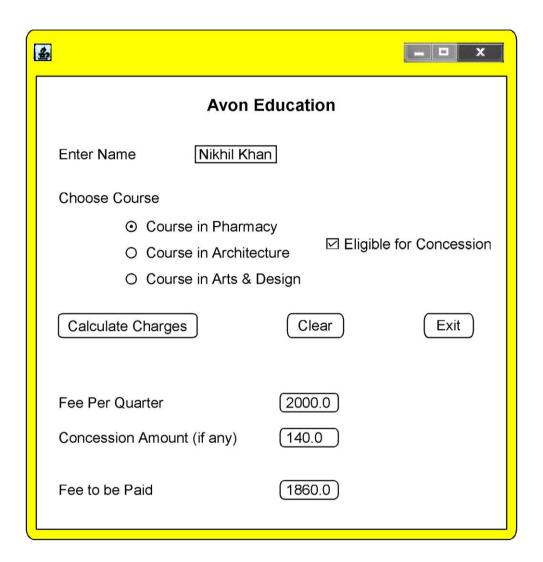
(b) What values will be displayed in **JOptionPane** when the following code is executed ? *2*

```
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*

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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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General Instructions:
● **Marking scheme is the final document for all references with regard to evaluation and cannot be altered under any circumstance.**
● **The answers given in the marking scheme are SUGGESTIVE. Examiners are expected to award marks for all alternative correct Solutions/Answers conveying the similar meaning.**
● **All programming questions have to be answered with respect to Java Language only.**

In Java,
● **Ignore case sensitivity for Variable identifiers in programming codes.**

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)	ABC Company wants to link its computers in 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	
	Ans	Type of network that will be formed : Wide Area Network(WAN) Transmission media to be used : Satellite		
		(1 mark for each part)		
	(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	
	Ans	Not communication media : Node Wired media : Optical Fiber cable Wireless media : Microwaves , Radio waves		
		(½ mark for identifying Node as not a communication media) *(½ mark for identifying wired media)* *(½ mark each for identifying wireless media)*		
	(c)	Write two examples each of software in the following categories: (i) Open Source Operating System (ii) Open Source Web Browser	2	
	Ans	(i) Linux, Android, 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, Linux, BOSS, Ubuntu, Kali Linux (ii) Mozilla Firefox, Google Chrome, Opera, QupZilla, Midori, rekonq, Tor Browser, NetSurf, Pale Moon, GNOME Web		
		(½ mark each for mentioning any two valid Open Source Operating System) *(½ mark each for mentioning any two valid Open Source Web Browser)*		
	(d)	Expand the following terms : (i) GSM	2	

	Ans	(i) GSM - Global System for Mobile Communications/ Global System for Mobile/ Graphics Stimulator Media (ii) IP - Internet Protocol		
		(1 mark for each correct answer)		
	(e)	Name the devices: (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	
	Ans	i) Firewall ii) Switch		
		(1 mark for each correct part)		
2	(a)	Identify the invalid variable names. State the reason if invalid. (i) Marks Unit (ii) Product_1 (iii) Sales123 (iv) 2Marks	1	

	Ans	Invalid variable names are :
		(i) Marks Unit
		   Reason : Variable Name should not contain space
		(iv) 2Marks
		   Reason : Variable Name should not start with digit		

		(1 mark for identifying any one invalid variable name and stating the reason) *Note: Full 1 mark to be awarded if both invalid variable names are identified but reasons are not given)*		
	(b)	Write the data type of variables that should be used to store: (i) Marks of students (ii) Grades of students(Grade can be 'A' or 'B' or 'C')	1	
	Ans	(i) `float/double /int / byte / short / long` (ii) `char`		
		(½ mark for each part) *Note : Valid data types of MySQL(integer/int/decimal/char/varchar) should also be accepted.*		
	(c)	Write examples of any two properties and any two methods of jButton component	2	

	Ans	**Properties of JButton component :**
		`Background,font,label,text,name,editable,enabled,`
		`horizontalalignment,border`
		Methods of JButton component :
		`setText(),getText(),setEnabled(),setVisible(), setEditable(),`
		`setVisible(), isSelected(), setSelected()`		

		(½ mark each for mentioning any two valid properties) *(½ mark each for mentioning any two valid methods)*		
	(d)	Write the purpose of HTML. Distinguish between <P> and tag.	2	

Ans	HTML is used to create web page(s). **<P>** tag is used to introduce a paragraph while tag is used to introduce a line break on a web page. *Note: <P> as paragraph tag and as line break tag to be accepted as difference*			
	(1 mark for stating the purpose) *(1 mark for correct difference)*			
(e)	Distinguish between ComboBox and ListBox. When would you prefer using them over Radiobutton and Checkbox?	2		
Ans	A ComboBox allows selection of one item from a set of items . while ListBox provides a scrollable set of items from which one or more item(s) may be selected. When the number of items are more Combobox or ListBox would be preferred over Radiobutton and Checkbox.			
	(1 mark for correct difference) *(1 mark for stating the preference)*			

(f)	Rewrite the following code using switch statement:
	 ```if (code == 'A')```
	 ``` allowance = 3500;```
	 ```else if (code == 'B')```
	 ``` allowance = 3200 ;```
	 ```else```
	 ``` allowance = 2000 ;```
		2		

Ans	```switch(code)```
	 ```{```
	 ```case 'A' : allowance = 3500;```
	 ``` break ;```
	 ```case 'B' : allowance = 3200;```
	 ``` break ;```
	 ```default : allowance = 2000;```
	 ```}```
	 Note:65 in place of 'A' and 66 in place of 'B' should be accepted			

	(½ mark for correct use of switch) *(½ mark for correct use of case)* *(½ mark for correct assigning of allowance)* *(½ mark for correct use of default)*			
3 (a)	What is MySQL used for? Abhay wants to start learning MySQL. From where can he obtain the MySQL software ?	1		

Ans	i) MySQL is an open source RDBMS used for managing databases.
	 ii) For obtaining MySQL , Abhay has the following options :
	    ● download from the website mysql.org
	    ● download it from any website that offers MySQL.
	    ● get the software from any source			

	(½ mark for part i) *(½ mark for stating any one valid option for part ii)*			
(b)	In the table "Student", Priya wanted to increase the Marks(Column Name:Marks) of those	1		

	`SELECT Marks+5 FROM Student WHERE Marks<33;` Identify errors(if any) in the above statement. Rewrite the correct SQL statement.		

Ans	Error : **UPDATE** should be used instead of **SELECT**
	Correct SQL statement:
	`UPDATE Student SET Marks= Marks+5`
	`WHERE Marks<33;`		

	(½ mark for only identifying the error) *Note: Full 1 mark to be allotted if only correct SQL statement is written*		
(c)	(i) Name the Data type that should be used to store AccountCodes like "A1001" of Customers. (ii) Name two Data types that require data to be enclosed in quotes.	2	
Ans	(i) `char/varchar` (ii) `char/varchar/date`		
	(i) (1 mark for mentioning any one correct data type) *(ii) (½ mark each for mentioning any two correct data types)* *Note : String data type of Java should also be accepted for both (i) and (ii) parts and 1 mark each should be awarded*		
(d)	Given the table 'Player' with the following columns :	2	

Table : Player

PCODE	POINTS
1	50
2	NULL
3	40

Write the output of the following statements:

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

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

Ans	**(i)** <u>AVG(POINTS)</u>
	          45
	(ii) <u>COUNT(POINTS)</u>
	            2		

	(1 mark each for each part)		

(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	

Ans	(Case 1: If RNO is treated as ID, the following solution should be accepted:)		
	Output of SELECT statement 1 :		

RNO	NAME
5	Rajeev
6	Chris
7	Feroze

Output of SELECT statement 2 :

RNO	NAME
5	Rajeev
6	Chris

(Case 2 : If RNO is **NOT** treated as ID, the following should be accepted:)

Output of SELECT statement 1 :

RNO	NAME
5	Rajiv
6	Chris
7	Feroze

Output of SELECT statement 2 :

RNO	NAME
5	Rajiv
6	Chris

	Case 1 and 2 : (2 mark for output of <u>any one</u> of the `SELECT` *statement)* *Note : 2 marks for mentioning column name error*		
(f)	Name SQL Single Row functions (for each of the following) that (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.	2	
Ans	(i) `length()/ instr()/ round()/ truncate()` or any other correct Single Row Function that returns a number (ii) `lower() / lcase()` (iii) `dayname()` (iv) `dayofweek()`		
	(½ mark for each part)		

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;
```

Ans	Variable 'c' cannot be of float/real data type. *Note: Full 1 mark should be allotted if correct code is written*		
	(1 mark for identifying/ correcting the code)		

(b)	What will be displayed in **JOptionPane** when the following code is executed?
	`int a=5, b = 2;`
	`    while (a < 20)`
	`    {`
	`        a = a + b;`
	`        b = a - b;`
	`        JOptionPane.showMessageDialog(null,a);`
	`    }`
		2	

Ans	7 12 19 31 OR 7 12 19 31		
	(½ mark for each correct value) *Note : Full 2 marks should be allotted if only 31 is mentioned*		

(c)	Write the code given below using 'for' loop instead of 'while' loop:
	`int i=1;`
	`    while(i<=5)`
	`    {`
	`        if(i * i == 4)`
	`                jTextField1.setText(""+i);`
	`        i=i+1;`
	`    }`
		2	

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

	(½ mark for initialization expression) *(½ mark for test expression)* *(½ mark for update expression)* *(½ mark body of loop)*		

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

Ans	i) 10		
	ii) 17		
	(1 mark for each part)		
(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);```		
Ans	`i= 10`		
	`z = 5`		
	(1 mark for each correct value)		
(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
Ans (i)		**// Calculation of Amount** ```\ndouble feeperqtr = 0.0,concess = 0.0,feetopay=0.0;\n\n if (jRadioButton1.isSelected())\n feeperqtr=2000;\n else if (jRadioButton2.isSelected())\n feeperqtr=2500;\n else if (jRadioButton3.isSelected())\n feeperqtr=2300;\n if (jCheckBox1.isSelected())\n concess= (0.07*feeperqtr);\n feetopay=feeperqtr-concess;\n jTextField2.setText("" + feeperqtr);\n jTextField3.setText("" + concess);\n jTextField4.setText("" + feetopay);\n```	
		(½ mark for correct use of if statement for Radiobutton) *(½ mark for assigning correct value for Fee per Quarter)* *(½ mark for correct use of if statement for Checkbox)* *(½ mark for calculating concession)* *(½ mark for calculating Fee to be paid)* *(½ mark for displaying Fee per Quarter)* *(½ mark for displaying concession)* *(½ mark for displaying Fee to be paid)*	
(ii)		When '**CLEAR**' button is clicked, all the textfields, radiobuttons and checkbox should be cleared.	1
Ans		```\njTextField1.setText("");\njTextField2.setText("");\njTextField3.setText("");\njTextField4.setText("");\njRadioButton1.setSelected(false);\njRadioButton2.setSelected(false);\njRadioButton3.setSelected(false);\njCheckBox1.setSelected(false);\n```	
		(½ mark for clearing any text field) *(½ mark for clearing check box/radiobutton)* *Note : NULL in place of "" should be accepted for clearing text field.*	
(iii)		When '**Exit**' button is clicked, the application should close.	1
		```\nSystem.exit(0);\n```	
		(1 mark for correct answer)	

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	
Ans	`SELECT FCODE, NAME,PRICE FROM Furniture` `WHERE PRICE <5000;`		
	(½ mark for `SELECT`*)* *(½ mark for* `WHERE`)		
(ii)	To display **NAMES** and **PRICE** of those Furniture Items that have 'table' anywhere in their names.	1	
Ans	`SELECT NAME,PRICE FROM Furniture` `WHERE NAME LIKE '%table%';`		
	(½ mark for `SELECT`*)* *(½ mark for* `WHERE`)		
(iii)	To display **WCODE** of Furniture Items. There should be no duplicate values.	1	
Ans	`SELECT DISTINCT(WCODE) FROM Furniture;`		
	(½ mark for `SELECT`*)* *(½ mark for* `DISTINCT`)		
(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	
Ans	`SELECT NAME, PRICE+500 FROM Furniture;`		
	(½ mark for `SELECT`*)* *(½ mark for* `PRICE+500`)		
(v)	To display **FCODE** and **NAME** of each Furniture Item in descending order of **FCODE.**	1	
Ans	`SELECT FCODE, NAME FROM Furniture` `ORDER BY FCODE DESC;`		
	(½ mark for `SELECT`*)* *(½ mark for* `ORDER BY`*)*		
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	

Ans	`SELECT * FROM FURNITURE WHERE MANUFDATE BETWEEN '2016-01-01' AND '2017-06-15';`
	OR
	`SELECT * FROM FURNITURE WHERE MANUFDATE >= '2016-01-01' AND MANUFDATE <= '2017-06-15';`
	OR
	`SELECT * FROM FURNITURE WHERE MANUFDATE BETWEEN '01-JAN-2016' AND '15-JUN-2017';`
	OR
	`SELECT * FROM FURNITURE WHERE MANUFDATE >= '01-JAN-2016'AND MANUFDATE <='15-JUN-2017';`	

	(½ mark for `SELECT`*)* *(½ mark for* `WHERE`*)*	
vii)	To display the average `PRICE` of all the Furniture Items, which are made of Wood with `WCODE` as `W02`.	1
Ans	`SELECT AVG(PRICE) FROM Furniture` `WHERE WCODE = 'W02';`	
	(½ mark for `SELECT`*)* *(½ mark for* `WHERE`*)* **OR** *(½ mark for* `SELECT`*, ½ mark for* '`FROM`' *clause)*	
viii)	To display `WCODE` wise, `WCODE` and the highest price of Furniture Items.	
Ans	`SELECT WCODE, MAX(PRICE) FROM Furniture` `GROUP BY WCODE;`	
	(½ mark for `SELECT`*)* *(½ mark for* `GROUP BY`*)*	
ix)	`SELECT SUM(PRICE) FROM Furniture WHERE WCODE='W03';`	1
Ans	<u>`SUM(PRICE)`</u> `6500`	
	(1 mark for correct answer)	
(x)	`SELECT COUNT(DISTINCT PRICE) FROM Furniture;`	1
Ans	<u>`COUNT(DISTINCT PRICE)`</u> `5`	
	(1 mark for correct answer)	
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	

Ans	`CREATE TABLE Inventory`
	`(`
	`MaterialId INTEGER PRIMARY KEY,`
	`Material Varchar(50)NOT NULL,`
	`Category Char,`
	`DatePurchase Date`
	`);`			

	(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)*			

(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 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	
Ans	Primary key (Table : **PATIENT**) - **PCODE** as it is unique to each row of table Primary key (Table : **TEST**) – **TESTID** as it is unique to each row of table Foreign key in table **PATIENT** : **TESTID** as it links the two tables and is Primary key in table **TEST**.		
	(½ mark each for identifying `PRIMARY KEY` *of both the tables)* *(½ mark for* `FOREIGN KEY` *identification)* *(½ mark for mentioning ANY one reason for* `PRIMARY` *or* `FOREIGN KEY`*)*		
(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	

| **Ans** | ```
SELECT NAME,PATIENT.TESTID,TESTNAME
                                        /*TEST.TESTID accepted*/
FROM PATIENT, TEST
WHERE PATIENT.TESTID = TEST.TESTID
AND DTADMIT BETWEEN '01-DEC-2017' and '15-DEC-2017';
OR
SELECT NAME,PATIENT.TESTID,TESTNAME
                                        /*TEST.TESTID accepted*/
FROM PATIENT, TEST
WHERE PATIENT.TESTID = TEST.TESTID
AND DTADMIT >='01-DEC-2017'and DTADMIT <= '15-DEC-2017';
OR
SELECT NAME,P.TESTID,TESTNAME          /*T.TESTID accepted*/
FROM PATIENT P, TEST T
WHERE P.TESTID = T.TESTID
AND DTADMIT BETWEEN '01-DEC-2017' and '15-DEC-2017';
OR
SELECT NAME,P.TESTID,TESTNAME          /*T.TESTID accepted*/
FROM PATIENT P, TEST T
WHERE P.TESTID = T.TESTID
AND  DTADMIT >= '01-DEC-2017' and DTADMIT <= '15-DEC-2017';
``` |

	(½ mark for SELECT)
	(½ mark for FROM)
	(½ mark for correct use of join)
	(½ mark for correct use of condition)
	Note : DTADMIT in default date format (yyyy-mm-dd) should also be accepted
(ii)	To display Names of Patients, Test names and Cost of Test for those Patients who have "Sharma" in their names.
| **Ans** | ```
SELECT NAME,TESTNAME,COST
FROM PATIENT, TEST
WHERE PATIENT.TESTID = TEST.TESTID
AND Name LIKE '%Sharma%';
OR
SELECT NAME,TESTNAME,COST
FROM PATIENT P, TEST T
WHERE P.TESTID = T.TESTID
AND Name LIKE '%Sharma%';
OR
SELECT P.NAME,T.TESTNAME,T.COST
FROM PATIENT P, TEST T
WHERE P.TESTID = T.TESTID
AND Name LIKE '%Sharma%';
``` |

	(½ mark for SELECT)
	(½ mark for FROM)
	(½ mark for correct use of join)
	(½ mark for correct use of condition)

(iii)	To increase the cost of those tests in the table **"TEST"** by ₹ 50.00 that have cost below ₹ 200.00	2	

Ans	```UPDATE TEST```
	 ```SET COST = COST+50.00```
	 ```WHERE COST <200.00;```		

	(1 mark for **UPDATE***)* *(½ mark for* **SET***)* *(½ mark for* **WHERE** *clause)*		

7	**(a)**	How does e-governance help in building trust between the Government and citizens?	2	
	Ans	● Transparency of Government processes, policies and decisions ● Awareness about new policies and facilities being offered by the Government. ● Enabling citizen engagement in the policy processes ● Reduces the waiting time ● Practices like influences and bribing are reduced		
		(2 marks for correct answer)		
	(b)	How can e-learning help students learn at their own pace?	1	
	Ans	● Students can go through the learning material any number of times as per his/her learning abilities ● Students can study at their own convenient time anywhere/anytime.		
		(1 mark for any relevant point)		

	(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.

Ans

S.No.	Function	
1	To let the user enter **NAME**	```TextField```
2	To let the user enter **MOBILE NUMBER**	```TextField```
3	To let the user choose one **PROFESSION** out of the categories : Teaching/Non Teaching/ Research Scholar	```RadioButton/ Combobox```
4	To let the user select facilities out of Gym, Yoga, Table Tennis, Badminton and Aerobics. More than one facility may be chosen.	```Checkbox/Listbox```

(½ mark for each correct answer)