MODEL TEST PAPERS

Model Test Paper 1

(Based on CBSE Sample Paper)

Three Hours (SOLVED) *Max. Marks : 70*

(*a*) *Gandharv is confused about Wi-Fi. Whether it is a*

(*i*) *type of computer.*

(*ii*) *type of network cable.*

(*iii*) *set of popular technologies and standards for wireless computer networking.*

(*iv*) *set of computer programs that help people log in to the Internet.*

(*b*) *It is a technology on computer networks whose purpose is to prevent unwanted networking connection according to some filtering/blocking rules. What is it ?*

(*c*) *Name these.*

(*i*) *It is a protocol/technology used to exchange files on Internet.*

(*ii*) *It provides a set of rules to transfer files, videos, images etc over the world wide web.*

(*d*) *Identify the topologies from the following.*

(*i*) *In it the nodes form a circular path for data to travel and each node is connected to two other nodes.*

(*ii*) *In it devices are connected through hub and the control, hub is responsible for receiving and transmitting data from each note to destination.*

(*e*) *Which of the following are open standards and which are proprietary standards ?*

(*i*) *OGG* (*ii*) *WMA*

(*iii*) *DOC* (*iv*) *PNG*

(*f*) *Give full forms of the following*

(*i*) *GNU* (*ii*) *FLOSS*

(*a*) (*iii*) set of popular technologies and standards for wireless computer networking.

(*b*) Firewall

(*c*) (*i*) FTP – File Transfer Protocol

(*ii*) HTTP – HyperText Transfer Protocol

(*d*) (*i*) Ring Topology (*ii*) Star Topology

(*e*) Open Standards – (*i*) OGG and (*iv*) PNG

Proprietory Standards – (*ii*) WMA and (*iii*) DOC

(*f*) (*i*) GNU's Not Unix (*ii*) Free Libre/Livre and Open Source Software

(M.1)

(*a*) *While developing a Java GUI application using NetBeans IDE, Asgar wants to ensure that AmountTF text field must not be zero or less than zero. Thus he wants to write a code that will display an error message if so happens. Which event handler should he write his code into ?*

(*b*) *What would you write in Exit button's ActionPerformed method, if you want to end the execution of your Java GUI application ?*

(*c*) *How many times does the following loop execute ? What is its type (Entry-controlled or Exit-controlled) ?*

```
int x = 2, y = 20 ;
while (x <= y) {
    JOptionPane.showMessageDialog(null, " " + x) ;
    x = x + 3 ;
}
```

(*d*) *Write a Java method that receives a 3-digits-integer and returns its middle digit.*

(*e*) (*i*) *What are the two table dimension tags ?*

(*ii*) *In order to add border to the table, BORDER attribute is specified in which tag ?*

(*f*) *What is wrong with following XML code ?*

```
<EMAIL>
    <TO> abc@gmail.com </TO>
    <Body> Hi There </Body>
</email>
```

(*g*) *Which method mimics the clicking of a button in Java Swing ?*

(*a*) In *FocusLost* event handler as well as in *Action* event handler of *AmountTF* text field.

(*b*) System.exit(0) ;

(*c*) 7 times.

It is an Entry-controlled loop.

(*d*)

```
private int retMid (int num) {
    int a = num % 100 ;
    int b = a/10 ;
    return b ;
}
```

(*e*) (*i*) <TR> and <TD> tags

(*ii*) <TABLE> tag

(*f*) XML is case sensitive thus <EMAIL> and <email> are not same. Thus the ending tag should be </EMAIL>

(*g*) doClick( )

3. (*a*) *Naved wants to list the names of all the tables in his database namely Status. What command(s) should he write at MySQL prompt to get this result ?*

(*b*) *Aahna wants to add some records (with balance > 10000) from an old table chequeOld to another table namely chequeNew. What command should she use for this ?*

(*c*) *What is the following command doing ?*

```
ALTER TABLE Persons
ADD CONSTRAINT chk_Person CHECK (P_ID > 0 AND City = 'Shimla') ;
```

(*d*) *Given a statement as follows.*

```
CREATE TABLE Orders
(   O_Id int NOT NULL,
    OrderNo int NOT NULL,
    P_Id int,
    PRIMARY KEY (O_Id),
    FOREIGN KEY (P_Id) REFERENCES Persons(P_Id) ) ;
```

Identify the number and types of constraints in the table Orders.

(*e*) *What is the following query doing ?*

```
ALTER TABLE Persons
DROP PRIMARY KEY ;
```

(*f*) *Ranbeer has created a table namely Trial that has 7 columns and 3 test records. After testing, Ranbeer added three more columns, fourteen more rows but deleted the 3 test records. What is the degree and cardinality of the table now ?*

(*g*) *The table QSales has following information in i.e.,*

Quarter	Sales
1	15000
2	NULL
3	5000
4	4000

Based on this, find the output of the following :

(*i*) `SELECT AVG(Sales) FROM QSales ;`

(*ii*) `SELECT Concat ('Quarter' , Quarter), Sales from QSales ;`

3. (*a*)
```
Use Status ;
Show tables ;
```

(*b*)
```
Insert into ChequeNew
SELECT * FROM chequeOld WHERE balance > 10000 ;
```

(*c*) The given command is adding a CHECK constraint namely **chk_person** in table **Persons**, that will ensure that **P_ID** should always be greater than 0 (zero) and City should always be **Shimla**.

(*d*) There are *three* constraints defined in **Orders** table as per above statement :

- Two NOT NULL constraints for columns **O_Id** and **P_Id**.
- One PRIMARY KEY constraint for column **O_Id**.
- One FOREIGN KEY constraint for column **P_Id**.

(*e*) The given statement drops the PRIMARY KEY constraint in table **Persons**.

(*f*) Degree = 10 ; Cardinality = 14.

(*g*) (*i*) 6000

(*ii*)
```
Quarter1    15000
Quarter2
Quarter3    5000
Quarter4    4000
```

(*a*) *What is this (i.e., this object) ?*

(*b*) *Given a String object namely* subject *having value as "12" stored in it. What will be result of following code ?*

```
JOPtionPane.showMessageDialog(null, " " + (subject.length( )
                    + Integer.parseInt(subject) ) ) ;
```

(*c*) *What will set as text of textfield JTF as per following statements ?*

(*i*) `JTF.setText ('A' + 'a') ;`

(*ii*) `JTF.setText ("A" + 'a') ;`

(*d*) *State the output of the following code :*

```
int a = 10, b = 5 ;
if(a > b)  {
    if(b > 5)
        System.out.println( "b is" + b) ;
}
else
        System.out.println( "a is" + a) ;
```

(*e*) *In JDBC coding, what method would you use to move to 6th row of the recordset* recSet *?*

(*f*) *Identify the errors in the following code : (line numbers are for indicative purpose)*

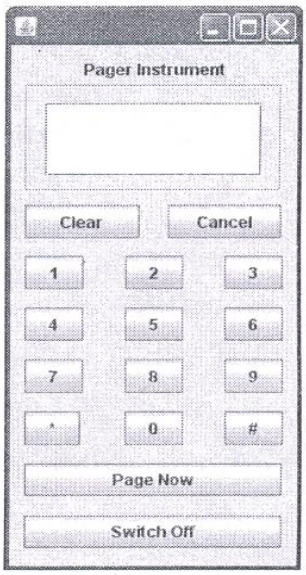
```
1. int principal = prinTF.getText( ) ;
2. int time = timeTF.getText( ) ;
3. float int = principal * 0.08 * time ;
4. JOptionpane.showMessageDialog ("Interest is" +int) ;
```

(*g*) *Read the following case study and answer the questions that follow :*

Rahul Gautam, a class XI student just got introduced to Java Swing and made a Pager Simulating Application in it. The adjoining picture is showing the execution state of the application. Look at the picture and help in getting rid of some problems he is getting at the time of execution.

Problem 1. *The user normally uses mouse to operate the pager application but sometimes if a non-numeric character is pressed on keyboard, the application does not stop it and allows that also.*

Problem 2. *The text field* ***txtPage*** *is showing numeric digits Left aligned as shown in picture but they are required to be right aligned.*



(*i*) Write the code statement required to be given in the Action Event of button *Switch Off* to close the application. The name of this object is *SwitchOffBtn*.

(*ii*) Write the code statement for *PageNowBtn* button (Page Now button in the above Picture) to show a Message dialog displaying "Message Sent" and call the Cancel button after this operation.

(*iii*) Write the code statement to solve Rahul's problem 1 by disabling keyboard entry at execution time.

(*iv*) Write the code statement to solve Rahul's problem 2 and place the code in FocusGained event of text field *PageTF*.

(*a*) The keyword **this** refers to currently calling object. It is automatically created and intialized by Java. So, we can refer to current object by using keyword this.

(*b*) 14

(*c*) (*i*) 162 (*ii*) Aa

(*d*) No output

(*e*) recSet.absolute(6) ;

(*f*) *Error 1* : **In line1 and line 2.**
getText( ) returns a string ; it must be parsed into integer form before storing in *int*.

Error 2 : **In line3.**
int is a keyword ; it cannot be used as variable name.

Error 3 : **In line 4.**
JOptionPane is not any class ; *JOptionPane* is.
First argument of *showMessageDialog( )* is missing.

Corrected code is :

```
1. int principal = Integer.parseInt( printTF.getText( )) ;
2. int time  =  Integer.parseInt ( timeTF.getText( ));
3. float  intr  =  principal * 0.08  * time ;
4. JOptionPane.showMessageDialog(null, "Interest is" + intr) ;
```

(g) (i)
```
System.exit(0);
```

(ii)
```
JOptionPane.showMessageDialog(null, "Message Sent");
CancelBtn.doClick();
```

(iii)
```
PageTF.setEnabled(False);
        or
PageTF.setEditable(False) ;
```

(iv)
```
private void PageTFFocusGained(…){
        PageTF.setHorizontalAlignment(JTextField.RIGHT);
}
```

5. (a) *What do you understand by the terms Candidate Key and Cardinality of a relation in relational database ?*

(b) *What is the difference between Natural join and Cross join ?*

NOTE : *Write SQL commands for (c) to (f) and write the outputs for (g) on the basis of table HOSPITAL*

Table : HOSPITAL

No.	Name	Age	Department	Datofadm	Charges	Sex
1	Arpit	62	Surgery	21/01/98	300	M
2	Zarina	22	ENT	12/12/97	250	F
3	Kareem	32	Orthopedic	19/02/98	200	M
4	Arun	12	Surgery	11/01/98	300	M
5	Zubin	30	ENT	12/01/98	250	M
6	Ketaki	16	ENT	24/02/98	250	F
7	Ankita	29	Cardiology	20/02/98	800	F
8	Zareen	45	Gynecology	22/02/98	300	F
9	Kush	19	Cardiology	13/01/98	800	M
10	Shilpa	23	Nuclear Medicine	21/02/98	400	F

(c) *To list the names of female patients who are in ENT department.*

(d) *To list names of all patients with their date of admission in ascending order.*

(e) *To display Patient's Name, Charges, Age for only female patients.*

(f) *To count the number of patients with Age < 30.*

(g) *Give the output of following SQL statements :*

(i)
```
Select COUNT (DISTINCT charges) from HOSPITAL ;
```

(ii)
```
Select MIN (Age) from HOSPITAL where Sex = "F" ;
```

(iii)
```
Select SUM (Charges) from HOSPITAL where Department = "ENT" ;
```

(iv)
```
Select AVG (Charges) from HOSPITAL where Datofadm < {12/08/98} ;
```

Ans. (*a*) *Candidate key.* A candidate key is the one that is capable of becoming primary key *i.e.,* a field or attribute that has unique value for each row in the relation.

(*b*) The Join in which only one of the identical columns (coming from joined tables) exists, is called **Natural Join.**

The **Cross join** (or cartesian product) is a very basic type of join that simply matches each row from one table to every row from another table.

(*c*)
```
SELECT Name FROM HOSPITAL
WHERE Department = "ENT" AND Sex = "F";
```

(*d*)
```
SELECT Name, Datofadm FROM HOSPILTAL
ORDER BY Dateofadm;
```

(*e*)
```
SELECT Name, Charges, Age FROM HOSPITAL;
WHERE Sex = "F";
```

(*f*)
```
SELECT COUNT(*) FROM HOSPITAL
WHERE Age < 30;
```

(*g*) (*i*) 5 (*ii*) 16 (*iii*) 750 (*iv*) 340.

6. (*a*) *Create table Employee as per following Table Instance Chart.*

Column Name	EmpID	EmpName	EmpAddress	EmpPhone	EmpSal	DeptID
Key Type	Primary					Foreign
Nulls/Unique		NOT NULL				
Fk Table						Department
Fk Column						Dept_ID
Datatype	NUMBER	VARCHAR	VARCHAR	VARCHAR	NUMBER	VARCHAR
Length	6	20	30	10	9, 2	2

(*b*) *Given two tables as shown here.*

employee2

empno (PK)	salary
100	200.85
200	129.54
300	98.17

employer

id	employee_no(FK)
51	100
52	100
53	200
54	300

Write commands to create them with constraints. Delete on a primary key should be cascaded to its foreign keys.

Note : *Consider the following tables Product and Client. Write SQL commands for the statement (c) to (d) and give outputs for SQL queries (e) to (f)*

Table : PRODUCT

P_ID	ProductName	Manufacturer	Price
TP01	Talcom Powder	LAK	40
FW05	Face Wash	ABC	45
BS01	Bath Soap	ABC	55
SH06	Shampoo	XYZ	120
FW12	Face Wash	XYZ	95

Table : CLIENT

C_ID	ClientName	City	P_ID
01	Cosmetic Shop	Delhi	FW05
06	Total Health	Mumbai	BS01
12	Live Life	Delhi	SH06
15	Pretty Woman	Delhi	FW12
16	Dreams	Banglore	TP01

(*c*) *To display the details of those Clients whose City is Delhi.*

(*d*) *To display the ClientName, City from table Client, and ProductName and Price from table Product, with their corresponding matching P_ID.*

(*e*)
```
SELECT Manufacturer, MAX(Price), Min(Price), Count(*)
FROM Product GROUP BY Manufacturer ;
```

(*f*)
```
SELECT ClientName, ManufacturerName
FROM Product, Client
WHERE Client.Prod_Id = Product.P_Id ;
```

Ans. (*a*)
```
CREATE TABLE Employee  (
    EmpID          Number(6)      PRIMARY KEY,
    EmpName        Varchar(20)    NOT NULL,
    EmpAddress     Varchar(30),
    EmpPhone       Varchar(10),
    EmpSal         Number (9, 2),
    DepID          Varchar(2)     CONSTRAINT fk
    ForeignKey (DeptID) REFERENCES Department (DeptID)
) ENGINE = innodb ;
```

(*b*)
```
CREATE TABLE employee2
(
    empno smallint(4) NOT NULL,
    salary FLOAT,
    PRIMARY KEY (empno)
) ENGINE = innodb ;

CREATE TABLE employer
(
    id SMALLINT(4),
    employee_no SMALLINT(4),
    FOREIGN KEY(employee_no) REFERENCES employee2(empno)
    ON DELETE CASCADE
) ENGINE = innodb ;
```

(*c*)
```
SELECT *
FROM CLIENT
WHERE City = "Delhi" ;
```

(*d*)
```
SELECT ClientName, City, ProductName, Price
FROM Client, Product
WHERE Client.P_ID = Product.P_ID ;
```

(*e*)

LAK	40	40	1
ABC	55	45	2
XYZ	120	95	2

(*f*)

Cosmetic Shop	Face Wash
Total Health	Bath Soap
Live Life	Shampoo
Pretty woman	Face Wash
Dreams	Talcom Powder

(*a*) *Define front-end of an information system.*

(*b*) *What benefits does an e-business offer to the customers ?*

(*c*) *What controls would you suggest for following types of inputs ?*

(*i*) *typed text (single line)*

(*ii*) *a mouse click*

(*iii*) *one out of many choices*

(*iv*) *multiple choices from a set*

(*a*) This is the user interface that the user sees and which is responsible for interacting with the user. The front end is responsible for receiving user's queries, requests etc and passing it over to the ***back-end***. The ***front-end*** basically includes Graphical User

Interfaces and the *Input Forms*, through which users interact with the system. The interface allows users to issue commands to the system and view the results, and in case of the Input Forms, enter and modify data.

(*b*) For customers, e-business offers benefits such as :

(*i*) improved speed of response ;

(*ii*) cost savings ;

(*iii*) improved efficiency and productivity ;

(*iv*) improved customer service

(*c*) (*i*) text field (*ii*) button / radio button / check box

(*iii*) radio button (*iv*) check box / list

Model Test Paper 2

(Based on CBSE Sample Paper)

Time : Three Hours (SOLVED) *Max. Marks* : 70

1. (*a*) *Bholu is confused as he is unable to find the name of a network of computers and other devices that is confined to a relatively small space – an office. Help him do that.*

(*b*) *Most common communication protocol on Internet that ensures end-to-end communication, is ?*

(*c*) *How is bandwidth measured on analog circuits and on digital ?*

(*d*) *What type of address is the following ? Also define it.*

```
20 : B9 : F1 : 63 : 2F : FB
```

(*e*) *What are DoS attacks ?*

(*f*) *What is an open standard ? Give some examples.*

(*g*) *Name two encodings used for Indian language computing.*

Ans. (*a*) LAN (Local Area Network).

(*b*) TCP/IP (Transmission Control Protocol/Internet Protocol).

(*c*) On analog – Baud

On digital – Bps (Bits per second)

(*d*) This is MAC address.

The MAC address refers to the physical address assigned by NIC manufacturer.

(*e*) *Denial-of-service* (DoS) attacks are those attacks that prevent the legitimate users of the system, from accessing or using the resources, information, or capabilities of the system.

(*f*) Open standards are internationally accepted technical standards that guarantee that data can be exchanged/is accessible across platforms and applications, *even as technologies change*. In simple words, the specification of *open standards* is open to all *i.e.*, is publicly and freely available without any restrictions.

Some examples are : OGG, FLAC, HTML, SVG etc.

(*g*) (*i*) Unicode

(*ii*) ISCII (Indian Standard Code for Information Interchange).

2. (*a*) *While working in NetBeans IDE, Angad wants that in the text area, the text should move to next line once it is filled width-wise and that too without breaking the word. What properties will help him do that ?*

(*b*) *The absence of break statement in the cases of switch statement gives rise to a mechanism known as ?*

(M.11)

(c) *What is Client Server Computing ? Can you give example of a real-life situation that uses Client Server Computing ?*

(d) *Differentiate between <UL> and <OL> tags.*

(e) *Write a function in java that takes two numbers as parameters. It then returns that num whose square is greater than the square of other number. In case of equality either number is returned.*

(f) *Compare HTML and XML in context of Data storage and sharing.*

Ans. (a) Both *Line Wrap* and *Word Wrap* properties set to *true* will help him achieve this.

(b) Fall-through.

(c) Client/server describes the relationship between two computer programs in which one program, *the client*, makes a service request from another program, *the server*, which fulfills the request.

In a network, the client/server model provides a convenient way to interconnect programs that are distributed efficiently across different locations.

Computer transactions using the client/server model are very common. For example, to check our bank account from our computer, a client program in our computer forwards the request to a server program at the bank. The balance is returned back by the server to the client in our personal computer, which displays the information for us.

(d) The <UL> tag is used for defining unordered lists (or unnumbered lists). In these lists a special bullet symbol appears in front of every list item.

The <OL> tag, on the other hand, is used for defining ordered or numbered lists. In these lists, a number or letter appears in front by every list item.

(e)
```
private int compareSqr(int a, int b) {
    if((a * a) >= (b * b))
        return a ;
    else
        return b ;
}
```

(f) **HTML**

- It is presentation oriented not data oriented.
- It does not have data validation capabilities.
- With it data cannot be shared across applications.

XML

- It supports data representation through standard data structure.
- It supports a structure (DTD) that can be validated.
- With it same data can be viewed in multiple ways by different user groups and applications.

3. (a) *Jacob is not clear about the difference between the following two statements :*

(*i*) `SELECT (9-6) * 12 ;`

(*ii*) `SELECT (9-6) * 12 FROM empl ;`

Help him understand the difference between these two statements.

(b) *Malvika wants to add the salary and commission for all the salesmen whose details are stored in Sales table as shown below :*

S No	Name	Salary	Commission
1	Raghav	8000	2000
2	Navjot	8000	6000
3	Jimmy	8000	NULL
4	Rahman	9000	NULL
5	Anand	9000	3000

But when she issues the query :

```
SELECT SNo, Salary + Commission FROM Sales;
```

The result shown is :

1	10000
2	14000
3	NULL
4	NULL
5	12000

She is getting total only for salesmen Raghav, Navjot and Anand and for others, she is not getting the total rather she is getting just NULL.

(*i*) *What is the problem with the query ?*

(*ii*) *What is the solution for this problem ?*

(c) *Indicate what is incorrect in the following CREATE TABLE statements:*

(*i*)
```
CREATE TABLE T1
(   C1 INTEGER NOT NULL,
    C2 INTEGER NOT NULL UNIQUE,
    C3 INTEGER NOT NULL,
    PRIMARY KEY (C1, C4)  );
```

(*ii*)
```
CREATE TABLE T1
(   C1 INTEGER NOT NULL PRIMARY KEY,
    C2 INTEGER NOT NULL,
    C3 INTEGER UNIQUE,
    PRIMARY KEY (C1, C2, C1)  );
```

(d) *When a PRIMARY KEY constraint is included in a table, what other constraints does this imply ?*

(e) *What is the difference between a WHERE clause and a HAVING clause of SQL SELECT statement ?*

(f) *Which two statements complete a transaction? (Choose two)*

A.
```
DELETE employees;
```

B.
```
DESCRIBE employees;
```

C.
```
ROLLBACK TO SAVEPOINT C;
```

D.
```
GRANT SELECT ON employees TO SCOTT;
```

E.
```
ALTER TABLE employees
MODIFY COLUMN sal;
```

F.
```
Select MAX(sal)
FROM employees
WHERE department_id = 20;
```

Ans. (a) (i) The first statement will display the result of the given expression only once *i.e.,* just

```
36
```

(ii) The second statement will display the result of the expression for every row in table empl. That is, if table has 4 rows then it would display

```
36
36
36
36
```

(b) (i) The problem is that when NULL value is added/subtracted/multiplied/divided with any other value, the result is always NULL. Hence for *Salary + Commission* expression, if the *Commission* is NULL the result is also NULL.

(ii) Solution to this problem is that first the NULL values in the *Commission* column should be replaced with 0 (zero) using *Update* command given below and then the given SELECT query be re-issued.

```
UPDATE SALES
SET Commission = 0
WHERE Commission IS NULL ;
```

(c) (i) Column C4 in the definition of the primary key does not exist.

(ii) Column C1 is defined as the primary key twice; this is not permitted.

(d) Two more constraints that primary key implies are : UNIQUE + NOT NULL

(e) The difference between WHERE and HAVING clause is that WHERE conditions are applicable on individual rows whereas HAVING conditions are applicable on groups as formed by GROUP BY clause.

(f) C, E. Because an implicit COMMIT occurs on the database when a user exits MySQL or issues a data-definition language (DDL) command such as a CREATE TABLE statement, used to create a database object, or an ALTER TABLE statement, used to alter a database object. Also after the ROLLBACK command is issued, a new transaction is started implicitly by the database session.

4. (a) *What is overridden method (in context of Inheritance) ?*

(b) *Given an int variable* **K** *with value 253. It is to be converted into equivalent string i.e., "253". What are the two ways of doing that ?*

(c) *Which of the following statements would set the text as 131 ?*

(i) `JTF.setText('A' + 'B');`

(ii) `JTF.setText("A" + 'B');`

(iii) `JTF.setText("A" + "B");`

(iv) `JTF.setText("" + ('A' + 'B'));`

(v) `JTF.setText("" + 'A' + 'B');`

(d) *What will be the output of the following code fragment if the value of ch is a*

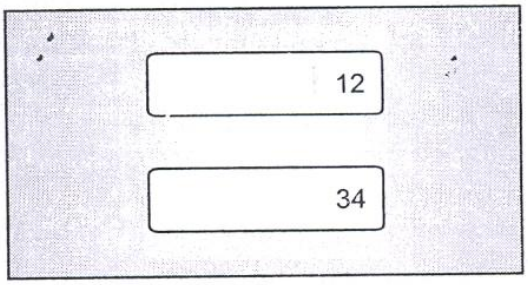
```
:
switch (ch)    {   case 'a'   :   System.out.println("It is a.");
                   case 'b'   :   System.out.println("It is b.");
                   case 'c'   :   System.out.println("It is c.");
                                  break;
                   case 'd'   :   System.out.println("It is d.");
                                  break;
                   default    :   System.out.println("Not a b c d.")
               }
:
```

(e) *In JDBC coding, what method would you use to move to first record of the recordset* **recSet** *?*

(f) *Identify the errors in the following code and (line numbers are for indicative purpose.) tell the output after correcting the code.*

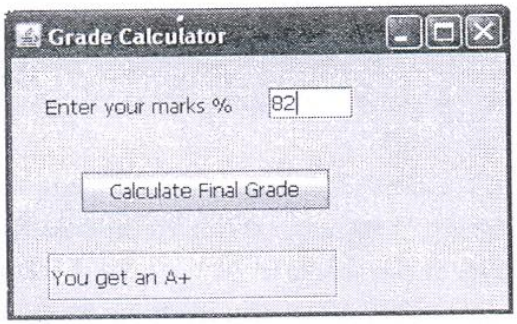
num1TF contains "12"

num2TF contains "34"




```
1.  int value = Integer.getInt(num1TF.getText() + num2TF.getText());
2.  JOptionPane.showMessageDialog(null, "" + (value + 1));
```

(g) *Design a GUI application having interface as shown below :*



(*i*) *The percentage marks are to be entered in the text field (marksTF) and upon clicking at the button (calcBTN), corresponding grade (as per following rules) should be displayed in the label (resultLbl) below command button.*

Marks %	Grade
>= 90	A++
80 – 90	A+
75 – 80	A
60 – 75	B
50 – 60	C
40 – 50	D
< 40	Fail

(*ii*) *Write the code for FocusLost event of text field marksTF to ensure that the user does not enter a negative or zero value. If a negative or a zero value is entered then the text field should be made blank and a warning message should be displayed.*

(*iii*) *If you are asked to add a Clear button to the application, what code would you write for it so that the text field marksTF and label resultLbl get cleared when it is clicked.*

Ans. (*a*) A method in a subclass hides or overshadows a method inherited from the superclass if both methods have the same signature (*i.e.*, the same name, number and type of arguments, and the same return type). This property is known as **overriding the inherited method.**

(*b*) (*i*) `"" + K`

(*ii*) `String.valueOf(K)`

(*c*) (*i*) and (*iv*)

(*d*) When input is *a*, the output will be as follows :

```
It is a.
It is b.
It is c.
```

(*e*) `recSet.first()`

(*f*) *Error in line 1.* There is no getInt( ) method of Integer class.

Corrected code will be :

```
int value = Integer.parseInt(num1TF.getText() + num2TF.getText());
```

After correction, output will be :

```
1235
```

(*g*) (*i*)

```
private void calcBTNActionPerformed(...) {// ... means default parameter(s)
float num = Float.parseFloat(marksTF.getText());
String s = "You get" ;
if(num >= 90)
    s += "A++";
else if(num >= 80)
    s += "A+" ;
```

```
        else if(num > 75)
            s += "A";
        else if(num > 60)
            s+= "B";
        else if(num > 50)
            s += "C";
        else if(num > 40)
            s+= "D";
        else
            s = "You Failed";
        resultLbl.setText(s);
    }
```

(*ii*)
```
    private void marksTFFocusLost(...) {// ... means default parameter(s)
        int mks = Integer.parseInt(marksTF.getText());
        if(mks <= 0)   {
            marksTF.setText("");
            JOptionPane.showMessageDialog(null, "Marks cannot be negative or zero.");
        }
    }
```

(*iii*)
```
    marksTF.setText("");
    resultLbl.setText("");
```

(*a*) *What do you understand by the terms Primary Key and Degree of a relation in relational database ?*

(*b*) *Differentiate between CHAR and VARCHAR datatypes.*

Given the following Teacher relation : Write SQL commands for question (c) to (g)

No.	Name	Department	DateofJoining	Salary	Sex
1.	Raja	Computer	21/5/98	8000	M
2.	Sangita	History	21/5/97	9000	F
3.	Ritu	Sociology	29/8/98	8000	F
4.	Kumar	Linguistics	13/6/96	10000	M
5.	Venkatraman	History	31/10/99	8000	M
6.	Sidhu	Computer	21/5/86	14000	M
7.	Aishwarya	Sociology	11/1/1988	12000	F

(*c*) *To list the name of female teachers in History department.*

(*d*) *To list all names of teachers with date of admission in ascending order.*

(*e*) *To display Teacher's name, Department, and Salary of female teachers.*

(*f*) *To count the number of teachers whose salary is less than 10,000.*

(g) *Give the output of the following SQL commands :*

(i) `SELECT MIN(DISTINCT Salary) FROM Teacher;`

(ii) `SELECT MIN(Salary) FROM Teacher WHERE Sex = "M" ;`

(iii) `SELECT SUM(Salary) FROM Teacher WHERE Department = "History";`

(iv) `SELECT AVG(Salary) FROM Teacher WHERE Dateofjoining < {1/1/98};`

Ans. (a) **Primary key** is an attribute or a group of attributes whose values can uniquely identify the tuples in the relation.

Degree. Number of attributes in a relation are called its degree.

(b) The difference between CHAR and VARCHAR is that of *fixed length* and *variable length*. The CHAR datatype specifies a *fixed length* character string. When a column is given datatype as CHAR(*n*), then MySQL ensures that all values stored in that column have this length *i.e.*, *n* bytes. If a value is shorter than this length *n* then blanks are added, but the size of value remains *n* bytes.

VARCHAR, on the other hand, specifies a variable length string. When a column is given datatype as VARCHAR(*n*), then the maximum size a value in this column can have is *n* bytes. Each value that is stored in this column stores exactly as you specify it *i.e.*, no blanks are added if the length is shorter than maximum length *n*. However, if you exceed the maximum length *n*, then an error message is displayed.

(c) `SELECT Name FROM Teacher WHERE Department = "History" AND Sex = "F" ;`

(d) `SELECT Name FROM Teacher ORDER BY DateofJoining ;`

(e) `SELECT Name, Department, Salary FROM Teacher WHERE Sex = "F";`

(f) `SELECT COUNT(*), FROM Teacher WHERE Salary < 10000;`

(g) (i) 8000 (ii) 8000 (iii) 17000 (iv) 11250

6 (a) *Create a table Customer as per following Table Instance Chart.*

Column Name	Cust_ID	Cust_Name	Cust_Address1	Cust_Address2	Pincode	Cust_Phone
Datatype	NUMBER	VARCHAR	VARCHAR	VARCHAR	NUMBER	VARCHAR
Length	7	30	20	30	6	10

(b) *Given following CREATE TABLE command, identify foreign key constraints and their complete details*

```
CREATE TABLE Lego_Composer
(   construction int(11) NOT NULL,
    brique int(11) NOT NULL,
    nombre integer NOT NULL DEFAULT 1,
    CONSTRAINT construction_composer FOREIGN KEY (construction)
    REFERENCES LEGO_CONSTRUCTION (id) ON DELETE RESTRICT ON UPDATE CASCADE,
    CONSTRAINT brique_composer FOREIGN KEY (brique)
    REFERENCES LEGO_BRIQUE (id) ON DELETE RESTRICT ON UPDATE CASCADE,
    PRIMARY KEY (construction, brique)
) TYPE = InnoDB ;
```

(c) *Consider the following tables GARMENT and FABRIC. Write SQL commands for the statements (i) and (ii) and give outputs for SQL queries (iii) and (iv).*

Table : GARMENT

GCODE	Description	Price	FCODE	READYDATE
10023	PENCIL SKIRT	1150	F03	19-DEC-10
10001	FORMAL SHIRT	1250	F01	12-JAN-10
10012	INFORMAL SHIRT	1550	F02	06-JUN-10
10024	BABY TOP	750	F03	07-APR-09
10090	TULIP SKIRT	850	F02	31-MAR-09
10019	EVENING GOWN	850	F03	06-JUN-10
10009	INFORMAL PANT	1500	F02	20-OCT-10
10017	FORMAL PANT	1350	F01	09-MAR-10
10020	FROCK	850	F04	09-SEP-09
10089	SLACKS	750	F03	31-OCT-10

Table : FABRIC

FCODE	TYPE
F04	POLYSTER
F02	COTTON
F03	SILK
F01	TERELENE

(i) *To display the details of all the GARMENTs, which have READYDATE in between 08-DEC-09 and 16-JUN-10 (inclusive of both the dates).*

(ii) *To display FABRIC wise highest and lowest price of GARMENTs from GARMENT table. (Display FCODE of each GARMENT along with highest and lowest price).*

(iii)
```
SELECT Description, Type FROM Garment, Fabric
WHERE Garment.fcode = Fabric.fcode AND Garment.Price >= 1260 ;
```

(iv)
```
SELECT MAX (FCODE) FROM FABRIC ;
```

ns. (a)
```
CREATE TABLE Customer
(   Cust_ID Number(7) PRIMARY KEY,
    Cust_Name Varchar(30),
    Cust_Address1 Varchar(20),
    Cust_Address2 Varchar(30),
    Pincode Number(6),
    Cust_Phone Varchar(10)
);
```

(b) **Two foreign keys :**

(i) Constraint name : Construction_composer
Child table : Lego_composer
Parent table : Lego_Construction
ChildTable-field : construction
ParentTable-field : id
Restrictions: On DELETE RESTRICT
On UPDATE CASCADE

(ii) Constraint name : brique_composer
Child table : lego_composer
Parent table : Lego_Brique
ChildTable-field : Brique
ParentTable-field : Id
Restrictions : On DELETE RESTRICT

(c) (i)
```
SELECT * FROM GARMENT
WHERE READYDATE BETWEEN '08-DEC-09' AND '16-JUN-10' ;
```

(ii)
```
SELECT FCODE, MAX(PRICE), MIN(PRICE) FROM GARMENT GROUP BY FCODE
```

(iii)

Description	Type
INFORMAL SHIRT	COTTON
INFORMAL PANT	COTTON
FORMAL PANT	TERELENE

(iv) F04

(a) *How is a back-end linked to a database and a server ?*

(b) *How has e-governance benefitted the common man ?*

(c) *What controls would you suggest for following types of inputs ?*

(i) *typed text (single line)* (ii) *typed text (multiple lines)*

(iii) *multiple items from a group of names*

(iv) *typed text which should remain hidden*

Ans. (a) The back-end is responsible for serving all the user requests. To serve the user requests, it has to interact with database to obtain data and to server to get the work done. After processing the given requests and queries, the server returns the results, which the **back-end** first interprets and then passes them over to front-end.

(b) For customers, e-business offers benefits such as :

- improved speed of response ;
- cost savings ;
- improved efficiency and productivity ;
- improved customer service

(c) (i) text field (ii) text area (iii) list box (iv) password box.

1. (*a*) Name the protocol used for sending and receiving e-mails.

(*b*) An organization is planning to link its sale counter situated in various parts of the same city, which type of network out of LAN, MAN or WAN will be formed ?

(*c*) Which of the following are open standards ?

.OGG .DOC .TTF .JPEG

(*d*) Which topology provides each device with a point-to-point connection to every other device in the network ?

(*e*) An organization is planning to link its head office situated in Delhi with the office at Srinagar. Suggest an economic way to connect it; the company is ready to compromise on the speed of connectivity. Justify your answer.

(*f*) When would you prefer hubs over repeaters ?

(*g*) What do you understand by cyber laws ?

2. (*a*) Which method would you use to determine which index has been selected in a list ?

(*b*) In what sequence the initialization, testing and execution of body is done in a for loop ?

(*c*) What HTML container tags do you apply to text to format the text as a paragraph ?

(*d*) What do you understand by well formed document ?

(*e*) What will be the value of *a* and *b* after execution of following code :

```
int a = 1, b = 2
if(++b < 5)
{  a *= b;
}
```

(*f*) Write a function in java that takes cost price and selling price of a good as input and returns the profit made by the shopkeeper.

(*g*) Which HTML command would you use to indent a single word and put a square bullet in front of it ?

3. (*a*) What are important transaction properties ?

(*b*) Bank accountant needs to change the last name of one of his customer in table Customer. Which command should be used for this ?

(*c*) Swati needs to display name of those students who have "A" as the second character in their name. She writes the following SQL query :

```
SELECT name
FROM STUD
WHERE name LIKE '*A%';
```

But the query is not producing the result. Identify the problem.

(*d*) What is the significance of NOT NULL constraint ?

(*e*) What do you understand by constraints ? What is their significance ?

(*f*) The ItemName and Price column of table "STOCK" are given below :

ItemName	Price
Bat	500
Table	800
Office Table	3000
Chair	275
Double Bed	9000
Sofa	6000

Based on this information, find the output of the following queries :

(*a*) `SELECT ItemName FROM STOCK where Price > 1000 ORDER BY Price DESC;`

(*b*) `SELECT ItemName , Price - Price*0.1 FROM STOCK;`

(*g*) A table SERVICES in a database has 9 columns but no row. 15 new rows are inserted in the table and 6 rows get deleted. What is the degree and cardinality of this table ?

4. (*a*) What is the difference between private and protected member ?

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

```
x = 5; y = 50;
while(x <= y)   {
    x = y / x;
}
```

(*c*) What will be the value of jTextField1 after execution of following code :

```
jTextfield1.setText("Informatics.substring(1,5)" ) ;
```

(*d*) Given the following code fragment :

```
i = 2;
do {
    JOptionPane.showMessageDialog(null, i+ "");
    i+= 2;
} while(i < 51);
JOptionPane.showMessageDialog(null, "Thank You");
```

Rewrite the following code using while loop.

(*e*) The following code has some error(s). Rewrite the correct code underlining all the corrections made :

```
int a, b = 20;
Do
{   a = b * 2;
    b = a/b
}While(b > 40)
```

(*f*) What will be the contents of jTextField1 and jTextField2 after executing the following :

```
String name1 = "Hello World";
name1 = name1.toLowerCase();
String name2 = name1.replace('', '!');
jTextField1.setText(name1);
jTExtField2.setText(name2);
```

5. (*a*) What is Database connectivity ?

(*b*) Write output of the following SQL queries :

(*i*) `SELECT LCASE(CONCAT('Prac', 'Tices'));`

(*ii*) `SELECT MID('MYSQL',1,2);`

(*iii*) `SELECT CONCAT(LOWER ('Class'), UPPER(' Twelth));`

(*iv*) `SELECT ROUND(4.132,1);`

(*c*) Consider the table *LAB* given below. Write commands in SQL for (*i*) to (*iv*) and output for (*v*) to (*viii*).

No.	ItemName	CostPerItem	Quantity	DateOfPurchase	Warranty	Operational
1	Computer	60000	9	21/05/2006	2	7
2	Printer	15000	3	21/02/2007	4	2
3	Scanner	18000	1	29/08/2008	3	1
4	Camera	21000	2	13/06/2006	1	2
5	Hub	8000	1	31/10/2009	2	1
6	UPS	4000	5	21/05/2006	1	4
7	Plotter	25000	2	11/01/2010	2	2

(*i*) Select the ItemName purchased after 31/01/2007

(*ii*) To list ItemName in ascending order of the date of purchase where quantity is more than 3.

(*iii*) To count the number of items whose cost is more than 10000.

(*iv*) To insert a new record in the LAB table with the following data :

8, "VCR", 10000, 2, {02/02/2010}, 1,2

(*v*) `SELECT MIN(Distinct Quantity) FROM LAB;`

(*vi*) `SELECT MIN(Warranty) FROM LAB WHERE Qunatity = 2;`

(*vii*) `SELECT SUM(CostPerItem) FROM LAB WHERE Qunatity > 2;`

(*viii*) `SELECT AVG(CostPerItem) FROM LAB WHERE DateOfPurchase < '01/01/2009';`

(a) (i) Which SQL statement defines the FOREIGN KEY constraint on the DEPT column of the EMP table ?

A.
```
CREATE TABLE EMP
(   empno NUMBER(4),
    ename VARCHAR(35),
    deptno NUMBER(7,2) NOT NULL
    CONSTRAINT emp_deptno_fk FOREIGN KEY deptno
    REFERENCES dept deptno ) ;
```

B.
```
CREATE TABLE EMP
(   empno NUMBER(4),
    ename VARCHAR(35),
    deptno NUMBER(7,2)
    CONSTRAINT emp_deptno_fk REFERENCES dept (deptno) );
```

C.
```
CREATE TABLE EMP
(   empno NUMBER(4)
    ename VARCHAR(35),
    deptno NUMBER(7,2) NOT NULL,
    CONSTRAINT emp_deptno_fk REFERENCES dept (deptno)
    FOREIGN KEY (deptno) );
```

D.
```
CREATE TABLE EMP
(   empno NUMBER(4),
    ename VARCHAR(35),
    deptno NUMBER(7,2) FOREIGN KEY
    CONSTRAINT emp deptno fk REFERENCES dept (deptno));
```

(ii) *Evaluate this CREATE TABLE statement* :

```
1. CREATE TABLE part(
2. part_id  NUMBER,
3. part_name VARCHAR(25),
4. manufacture_id  NUMBER(9),
5. cost NUMBER(7,2),
6. retail_price       NUMBER(7,2) NOT NULL,
7. CONSTRAINT part_id_pk  PRIMARY KEY (part_id),
8. CONSTRAINT cost_nn NOT NULL (cost),
9. CONSTRAINT FOREIGN KEY (manufacturer_id) REFERENCES manufacturer (id));
```

Which line will cause an error ? Why ?

(b) Create table Department as per following Table Instance Chart.

Column Name	DeptID	DeptName
Key Type	Primary	
Nulls/Unique		NOT NULL
Datatype	NUMBER	VARCHAR
Length	2	20

(c) Consider the tables Product and Client given below :

Table : PRODUCT

P_ID	ProductName	Manufacturer	Price
TP01	Talcom Powder	LAK	40
FW05	Face Wash	ABC	45
BS01	Bath Soap	ABC	55
SH06	Shampoo	XYZ	120
FW12	Face Wash	XYZ	95

Table : CLIENT

C_ID	ClientName	City	P_ID
01	Cosmetic Shop	Delhi	FW05
06	Total Health	Mumbai	BS01
12	Live Life	Delhi	SH06
15	Pretty Woman	Delhi	FW12
16	Dreams	Banglore	TP01

Write the commands in SQL for the parts (*i*) and (*ii*) below and with reference to the tables, predict the output for part (*iii*) below :

(*i*) To display the details of Products whose Price is in the range of 50 to 100 (Both values included).

(*ii*) To display the ClientName, City from table Client, and ProductName and Price from table Product, with their corresponding matching P_ID.

(*iii*) To increase the Price of all Products by 10.

(*a*) What is front end ?

(*b*) How has today's technology contributed to e-goverence ?

(*c*) What controls would you suggest for following types of inputs ?

(*i*) To display some information

(*ii*) Enter password

(*iii*) To choose more than one subject from a set of subjects

(*iv*) To enter multiline text

Model Test Paper 4

1. (*a*) Which protocol lets you log onto a remote machine and run specific applications there ?

   (*b*) Which transmission medium is useful for sparsely populated areas ?

   (*c*) A device receives a signal on an electromagnetic or optical transmission medium, amplifies the signal, and then retransmits it along the next leg of the medium. Which device is this ?

   (*d*) Name an open standard for the following : (*i*) Office documents (*ii*) vector images

   (*e*) Management of Global village enterprise wants that the LAN segment in each of its buildings get a dedicated bandwidth *i.e.*, bandwidth must not be shared. How can this be achieved ?

   (*f*) Name two encodings used for Indian Language computing.

   (*g*) A webserver has started receiving endless messages. What is this situation like ?

2. (*a*) Which property would you set for setting the password character as '$' ?

   (*b*) What is the effect of absence of a break in a switch statement ?

   (*c*) Which HTML tag is used to insert a horizontal rule ?

   (*d*) What is the difference between <BASEFONT> and <FONT> tag ?

   (*e*) What will be the value of *i* and *j* after execution of following code :

```
int i = 1, j = 1;
for(; ;)
{   if (i > 5)
     break;
    else
      j += i;
    i += j;
}
```

   (*f*) Write a function in java that takes a year as parameter and returns 1 if it is a leap year and 0 otherwise.

   (*g*) What is the significance of root element in XML ?

3. (*a*) Which statement is used to mark the start of a transaction ?

   (*b*) Aman needs to remove all the data in the EXCHANGE table and the structure of the table along with the indexes associated with the table. Which statement should he use ?

   (*c*) On the SCHEDULE table, SCHEDULE_ID is the primary key, NAME is the customer name. Evaluate this DELETE statement (whether it is correct or not. Why/Why not ?)

```
DELETE SCHEDULE_ID, NAME from schedule;
```

(*d*) What must exist on the parent table before MySQL will allow you to sreate a FOREIGN KEY constraint from the child table ?

(*e*) What is NOT NULL constraint ? How is it different from DEFAULT constraint ?

(*f*) Data of table "COACHES" is given below :

COACH_NAME	SEX	PAY
AJAY	M	200
SEEMA	F	100
VINOD	M	300
TANEJA	F	500

Based on this information, find the output of the following queries :

(*a*) `SELECT COACH_NAM, PAY, SEX, Pay * 0.15 FROM COACHES;`

(*b*) `SELECT COACH_NAME FROM COACHES ORDER BY PAY;`

(*g*) A table SPORTS1 in a database has 3 columns and 30 rows. Another similar table SPORTS2 has 3 columns and 50 rows. All the records from SPORTS2 are added into SPORTS1 table. What is the degree and cardinality of both these tables now ?

4. (*a*) What do you mean by function overloading ?

(*b*) A text field contains a *Date_string*(*e.g.*, dd/mm/yyyy format) Write a java statement to convert this string in to Date type.

(*c*) What will be the value of *jTextField1* after execution of following code :

```
jTextfield1.setText("Information".reverse());
```

(*d*) Rewrite the following code fragment using switch :

```
if(ch == 'E')
    east++;
if(ch == 'W')
    west++;
if(ch == 'N')
    north++;
if(ch == 'S')
    south++;
else
    jOptionPane.showMessageDialog(null, "unknown");
```

(*e*) The following code has some error(s). Rewrite the correct code underlining all the corrections made :

```
Int R, W = 90
while W > 60
{   R = W-50;
    W = r;
}
```

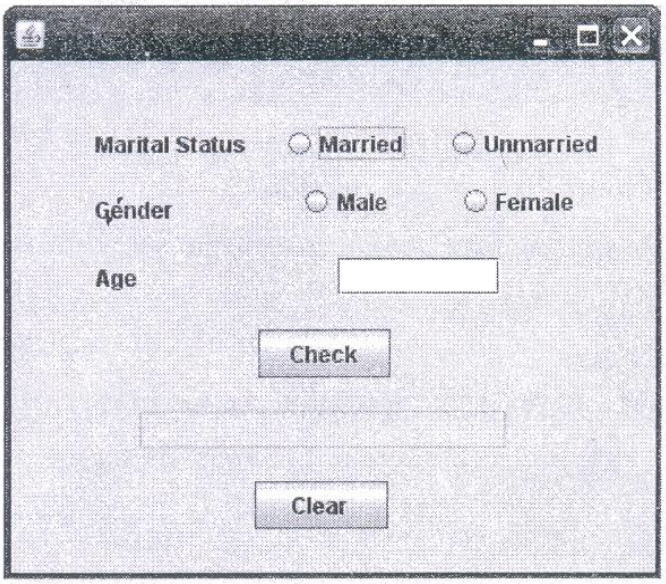
.at will be the contents of jTextField1 and jTextField2 after executing the ollowing :

```
String name1 = "Informatics Practices" ;
name1 = name1.toUpperCase();
String name2 = name1.subString(1,5);
jTextField1.setText(name2);
jTExtField2.setText(name1);
```

(g) A company insured its drivers in the following cases :

- If the driver is married
- If the driver is unmarried, male and above 30 years of age
- If th driver is unmarried, female and above 25 yrs of age

In all other cases the driver is not insured. Nandita creates a GUI application for this company (to check whether the driver is insured or not) as shown below.



(i) What should be done so that only one of the radio button out of *Married* and *Unmarried* and one from *Male* and *Female* could be selected at a time.

(ii) Write code to do the following

(a) When "Check" button is clicked, Text Field named *txtInsured* should show whether the driver is insured or not.

(b) Clear *Age* and *txtInsured* text fields.

5. (a) What is the role of database server in database management system.

(b) Write output of the following SQL queries

(i) `SELECT TRIM(" TRAILING SPACES FROM Welcome ");`

(ii) `SELECT 5 mod 6;`

(iii) `SELECT LENGTH("JAVA");`

(iv) `SELECT POWER(5,2) * count (*) FROM Dept ;` (NOTE : Dept table has 4 records)

(c) Consider the table GRADUATE given below . Write commands in SQL for (*i*) to (*iv*) and output for (*v*) to (*viii*).

NO.	NAME	STIPEND	SUBJECT	AVERAGE	DIV
1	Karan	400	Accounts	68	1
2	Divakar	450	Informatics Practices	68	1
3	Divya	300	English	62	2
4	Arun	350	Accounts	63	1
5	Sabina	500	Mathematics	70	1
6	John	400	English	55	2
7	Robert	250	Accounts	64	1
8	Rubina	450	Mathematics	68	1
9	Vikas	500	Informatics Practices	62	1
10	Mohan	300	Mathematics	57	2

(*i*) List the names of those students who have obtained DIV 1 sorted by NAME.

(*ii*) Display a report listing NAME, STIPEND, SUBJECT and amount of stipend received in a year assuming that the stipend is paid every month..

(*iii*) To count the number of students who are either *Accounts* or *Informatics Practices* graduates

(*iv*) To insert a new row in the graduate table :

```
11, "SAJAL", 300, "English", 75, 1
```

(*v*)
```
SELECT MIN(AVERAGE) FROM GRADUATE WHERE SUBJECT = 'Accounts';
```

(*vi*)
```
SELECT SUM(STIPEND) FROM GRADUATE WHERE DIV = 2;
```

(*vii*)
```
SELECT AVG(STIPEND) FROM GRADUATE WHERE AVERAGE >= 65;
```

(*viii*)
```
SELECT COUNT(DISTINCT SUBJECT) FROM GRADUATE;
```

6. (*a*) Write on SQL command for creating a table PAYMENT who structures given below

Field name	Datatype	Size	constraint
Loan_number	Number	5	Part of primary key
Paymant_number	Varchar2	3	Part of primary key
Payment_date	DATE		NOT NULL
Payment_amount	Number	7	> 0

(*b*) In a database there are two tables 'EMPLOYEE', 'WORKS' as shown below :

EMPLOYEE

Employee_name	City
Kushal	Delhi
Komal	Nagpur
Suneeta	Jaipur

WORKS

Employee_Name	Branch_name	Salary
Kushal	Ashok vihar	6000
Raj	Janak puri	9000
Komal	Durgapur	8000

(i) How many rows will be there in the Left Outer join of these two tables?
(ii) Is there any discrepancy in the Emplyee_Name column of WORKS table?

(c) Consider the tables PURCHASE and CUSTOMER given below:

CUSTOMER

Cutomer_ID	First_Name	Last_Name	DateOfBirth
1	Alisha	Madan	20/01/1989
2	Akhil	Sachdeva	01/02/1990
3	Rajesh	Mehta	10/09/1988
4	Rani	Garg	24/11/1986

PURCHASE

Cutomer_ID	Date	PurchaseAmount
3	11/09/2010	200
1	14/10/2010	199
2	21/09/2010	600
1	01/09/2010	99
4	23/11/2010	300

With reference to these tables, write commands in SQL for (*i*) and (*ii*) and output for (*iii*)

(*i*) Display the first name, last name and purchaseAmount of all the customers.

(*ii*) Display the names of all customers whose purchase amount is more than Rs 200.

(*iii*)
```
SELECT Customers.FirstName, Customers.LastName,
SUM(Sales.SaleAmount) AS SalesPerCustomer
FROM Customers JOIN Sales
ON Customers.CustomerID = Sales.CustomerID
GROUP BY Customers.FirstName, Customers.LastName
```

(*a*) What is Data Connectivity ?

(*b*) What is the significance of good GUI ?

(*c*) Seema works for a Sports company. She wants to create controls on a form for the following functions. Choose appropriate controls from Text Field, Label, Radio Button, Check box, List, Combo Box, Button and write in the third column.

S. No.	Controls used to	Control
1	Enter Team name	
2	Select Sports type	
3	Enter Number of Members	
4	To save the details	

Model Test Paper 5

1. (*a*) What is the unique name given to site that becomes site's identification on Internet.

(*b*) Zoom developers wants to link its head office in Delhi to its another office in Japan. What type of network would this connection result into ?

(*c*) Which communication media would you suggest to be procured by a company for connecting its local offices in New Delhi for very effective and fast communication ?

(*d*) Which of the following are proprietary standards ? AIFF OGG RM HTML

(*e*) Write two disadvantages of twisted pair cables.

(*f*) Mention any two advantages of Open Source Software over Proprietary Software.

(*g*) How will you prevent/counter threats to network security ?

2. (*a*) By default, a combo box does not offer editing features. How would you make a combo box editable ?

(*b*) What is the significance of NULL statement ?

(*c*) Write HTML code to produce a text area with 10 rows and 30 columns.

(*d*) Which attributes are used to give border to a table ?

(*e*) What will be the value of *j* and *k* after execution of following code :

```
int j = 10, k = 12;
if(k >= j)
{   k = j;
    j = k;      }
```

(*f*) Write a function in java that takes temperature of a city in Fahrenheit as parameter and returns this temperature after converting it into Centigrade degrees.

(*g*) What do you understand by elements and attributes of XML-documents ?

3. (*a*) Which command is used in MySQL to undo the changes made during transaction execution ?

(*b*) Sheela needs to remove all the rows from the SALE_HISTORY table to release the storage space. But she does not want to remove the table structure. Which statement should she use ?

(*c*) Meenal uses a STUDENT table with following columns :

```
NAME, CLASS, COURSE_ID, COURSE_NAME
```

She needs to display names of students who have not been assigned any course or have been assigned "Pathology" course. Pathology courses' names end with "Pathology". She wrote the following query :

```
SELECT NAME, CLASS
FROM STUDENT, COURSE
WHERE COURSE_NAME = NULL OR COURSE_NAME = "%Pathology" ;
```

But the query is not producing the result. Identify the problem.

(M.31)

(*d*) When a PRIMARY KEY constraint is included in a table, what other constraints does this imply ?

(*e*) What is the importance of primary key in a table ? Explain with a suitable example.

(*f*) The title and price columns of table "Library" are given below :

Title	Price
Mastering c++	295
Guide Network	200
Mastering SQL	135
DOS Guide	175
Basic for begineers	40
Mastering Window	225

Based on this information, find the output of the following queries :

(*a*) `SELECT MIN(price) FROM Library;`

(*b*) `SELECT COUNT(Title) FROM Library WHERE Price < 150;`

(*g*) A table ACCOUNT in a database has 3 columns and 30 rows. The DBA has added 3 more columns and 50 more rows to the table. But the table has about 15 records where balance is null. So, the DBA has removed those records also. What is the degree and cardinality of this table now ?

4. (*a*) Give two advantages of inheritance.

(*b*) What will be the content of *jTextField1* after execution of following code :

```
int ch = 45;
if (ch >= 45)
    jTextField1.setText(ch + "");
else
    jTextField1.setText((10 * 10) + "");
```

(*c*) What will the following statement do :

```
jTextfield1.setText("String".append("Buffer"));
```

(*d*) Given the following for loop :

```
int sz = 25;
for(int i = 0,sum = 0; i < sz;i++)
    sum = sum + 1;
```

Write equivalent while loop for the above code.

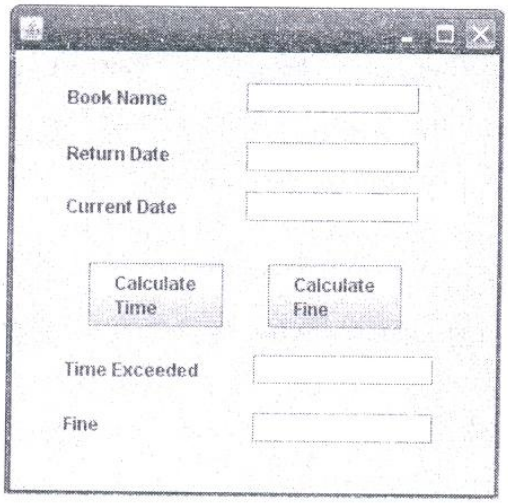
(*e*) The following code has some error(s). Rewrite the correct code underlining all the corrections made :

```
int sum; value; inct;
int I ;
for(i == 0, i <= 10, i++)
    sum += i;
inct ++;
```

(*f*) What will be the contents of jTextField1 and jTextField2 after executing the following :

```
jTextField1.setText("textField".reverse());
jTExtField2.setText(Math.abs(-9.2) + "");
```

(*g*) A library charges a fine for every book returned late. Radhika developed a GUI application for her library as shown below :



For first 5 days the fine is 1 rupee, for 6-10 days fine is 2 rupee and above 10 says fine is 2 rupee per day.

(*i*) Write the code to display current day in text field for current date(namely *CurDate*)

(*ii*) Write code to do the following

(*a*) When "Calculate time" button is clicked , the number of days the member is late to return the book is calculated as number of days between current date and return date and it should be displayed in text field for "time exceeded" (namely *txtExceeded*).

(*b*) When "Calculate Fine" button is clicked, fine is calculated on the basis of time exceeded as displayed in text field for Fine (namely *txtFine*).

(*a*) What is a datatype ? Name some datatypes used in MySQL.

(*b*) What are three transaction control statements in MySQL ? Give example.

(*c*) Consider the table HOSPITAL given below . Write commands in SQL for (*i*) to (*iv*) and output for (*v*) to (*viii*).

HOSPITAL

No.	Name	Age	Department	Dateofadm	Charges	Sex
1	Sandeep	65	Surgery	23/02/98	300	M
2	Ravina	24	Orthopedic	20/01/98	200	F
3	Karan	45	Orthopedic	19/02/98	200	M

No.	Name	Age	Department	Dateofadm	Charges	Sex
4	Tarun	12	Surgery	01/01/98	300	M
5	Zubin	36	ENT	12/01/98	250	M
6	Ketaki	16	ENT	24/02/98	300	F
7	Ankita	29	Cardiology	20/02/98	800	F
8	Zareen	45	Gynecology	22/02/98	300	F
9	Kush	19	Cardiology	13/01/98	800	M
10	Shailya	31	Nuclear Medicine	19/02/98	400	F

(*i*) To show all information about the patients of cardiology department.

(*ii*) To list the names of female patients who are in orthopedic department.

(*iii*) To display Patient's name, charges, Age for only male patients.

(*iv*) To count the number of patients with Ag>30

(*v*) `SELECT COUNT(DISTINCT Department) FROM HOSPITAL;`

(*vi*) `SELECT MAX(Age) FROM HOSPITAL WHERE Sex = 'M';`

(*vii*) `SELECT AVG(Charges) FROM HOSPITAL WHERE Sex = 'F';`

(*viii*) `SELECT SUM (Charges) FROM HOSPITAL WHERE DATEOFadm < '12/08/98';`

6. (*a*) Write an SQL command for creating a table student who structures given below

Field name	Datatype	Size	Constraint
Rno	Number	3	Part of primary key
Class	Varchar	5	Part of primary key
Percentage	Number	5, 2	> 0 and <= 100

(*b*) In a database there are two tables 'LOAN', 'BORROWER' as shown below :

LOAN

Loan_number	Branch_name	Amount
L-170	Downtown	3000
L-230	Redwood	4000
L-260	Perryridge	1700

BORROWER

Customer_Name	Loan_number
Jones	l-170
Smith	L-230
Hayes	L-155

(*i*) Identify the primary key column in the table LOAN.

(*ii*) How many rows and columns will be there in the natural join of these two tables ?

(*c*) Consider the tables PEOPLE and PROPERTIES given below

PEOPLE

Name	Phone	PID
Aisha	786454343	1
Karan	987676763	2
Rosy	999878787	3

PROPERTIES

PID	SPID	Farm_name
1	1	Old House Farm
3	2	Nanda's Farm
3	3	Will's Farm
3	4	Tall Trees
4	5	The Florist

With reference to these tables, write command in SQL for (*i*) and (*ii*) and output for (*iii*)

(*i*) Display the name and phone number of each person who has a farm.

(*ii*) Display the farm name of farm(s) owned by Rosy.

(*iii*)
```
SELECT name, phone, selling
FROM demo_people LEFT JOIN demo_property
ON demo_people.pid = demo_property.pid;
```

(*a*) Give one societal impact of e-business.

(*b*) Define an attribute. What is a key attribute ?

(*c*) Anshul works for a Hotel. She wants to create controls on a form for the following functions. Choose appropriate controls from Text field, Label, Radio Button, Check box, List, Combo Box, Button and write in the third column.

S. No.	Controls used to :	Control
1	Select room type	
2	Enter Customer's name	
3	Enter Arrival Date	
4	To book room	