1. (a) What is the difference between hardware and software? (2)
   (b) What do you understand by IDE? (1)
   (c) Define firewall and digital signature. (2)
   (d) Give an example of
       1) System software. 2) Utility software. (1)
   (e) Name the Cyber Act in India and what is its function? (2)
   (f) What is the function of CPU? State its subunits and explain the function of each. (2)

2. (a) While working on Net Beans, Arun included a “addBtn” which is disabled at design time. It should be enabled only at runtime. Write the statement to do the same. (1)
   (b) Name the window that contains the swing control components. (1)
   (c) What is the difference between runtime error and logical error? (2)
   (d) What will be the value of the following expression if the value of j=5?
       i) \((5*++j)\%6\)
       ii) \((5*j++)\%6\) (2)
   (e) Rectify the errors in the following code fragment and rewrite the corrected code:

       ```java
       int a, b;
       a = text1.getText();
       b = text2.getText();
       if a>b
       { System.out.println("The greater Number is "+a);
         else
         System.out.println("The greater Number is "+b);
       ```

       (2)

   (f) What will be the value of P and Q after execution of the following code:

       ```java
       int P, Q=50;
       for(P=8;P<=12;P++)
       {
         Q+=P;
       }
       JOptionPane.showMessageDialog(this,"P: " +P +"Q: " +Q +" ");
       ```

       (2)
3. (a) While writing a code, Ms. Sawant wants to execute any statement even if the condition is false at least once. Help her to choose appropriate loop out of do … while( ) and while( )

(b) What is the difference between selection and repetition statements?

(c) Write the equivalent code for the following using If .. else if.. structure

```
switch(op)
{
    case ‘+’ : c=a+b; break;
    case ‘-’ : c=a-b; break;
    case ‘*’ : c=a*b; break;
    case ‘/’ : c=a/b; break;
    default : System.out.println("Not a valid operation"); System.exit(0);
}
System.out.println(""+c);
```

(d) How many times does the following while loop get executed?
```
int K=5;
int L=36;
while(K<=L)
{
    K+=6;
}
```

(e) What will be displayed in jTextArea1 after executing the following statement?
```
jTextArea.setText("GREAT \n COUNTRY \t INDIA");
```

(f) Write the equivalent code for the following using ‘do-while’ loop
```
for( int i = 0, j=10; i!=j; i++ j--)
{
    System.out.println(i+j);
}
```
4. Given below is a form used for interest calculator:

The controls used are:
- Text Fields: txtname, txtprincipal, txttime, txtinterest
- Radio Buttons: rbmale, rbfemale, rbSr
- Push Buttons: btnClear, btnCalc, btnExit

Interest rates are:
- 7% for Males, 8% for Females and 9% for Sr. Citizens.

Now write the code for the following requirements:
(i) When btnClear is clicked, all the text boxes must be cleared.
(ii) When btnCalc is clicked the interest to be calculated as per the interest rates given and should be displayed in the appropriate Text Field(txtInterest).
(iii) When the btnExit is clicked the application should close.

5. (a) Ms. Mirana wants to remove the entire content of a table “BACKUP” along with its structure to release the storage space. What MySql statement should she use?

(b) Differentiate between Alternate key and Candidate key.

(c) Mr. Janak is using a table with the following columns:
Name, Class, Course_Id, Course_name
He needs to display names of students, who have not been assigned any stream or been assigned Course_name that ends with “economics”.
He wrote the following command, which did not give the desired result.

SELECT Name, Class FROM Students
WHERE Course_name = NULL OR Course_name ="%economics";

Help Mr. Janak to run the query by removing the error and write the correct query.

(d) What is the difference between delete and drop command in MySql?
(e) Answer the given queries based on the following table Student:

<table>
<thead>
<tr>
<th></th>
<th>Name</th>
<th>Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Anil</td>
<td>83</td>
</tr>
<tr>
<td>2</td>
<td>Vinil</td>
<td>98</td>
</tr>
<tr>
<td>3</td>
<td>Karthik</td>
<td>65</td>
</tr>
<tr>
<td>4</td>
<td>Sonia</td>
<td>42</td>
</tr>
</tbody>
</table>

(i) Select length(Name) from Student where Mark between 42 and 83;
(ii) Select Name, Mark from Student where Name like '%ni%';

(f) What is a keyword?

(g) Write the output of the following SQL queries:
(i) Select Right(Upper("Computer"),3);
(ii) Select Truncate(1672.784,-2);
(iii) Select Date('2010-12-15 11:15:03');
(iv) Select Dayofyear('2010-12-31');

(h) What is the purpose of the following commands in MySQL?
   i) DESCRIBE
   ii) USE

6. Write SQL commands for (i) to (vi) and write output for (vii) to (x) on the basis of Teacher relation given below.

<table>
<thead>
<tr>
<th>No</th>
<th>Name</th>
<th>Age</th>
<th>Department</th>
<th>Date of Join</th>
<th>Salary</th>
<th>Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jigal</td>
<td>34</td>
<td>Computer</td>
<td>1997-01-10</td>
<td>12000</td>
<td>M</td>
</tr>
<tr>
<td>2</td>
<td>Sharmila</td>
<td>31</td>
<td>History</td>
<td>1998-03-24</td>
<td>20000</td>
<td>F</td>
</tr>
<tr>
<td>3</td>
<td>Sandeep</td>
<td>32</td>
<td>Maths</td>
<td>1996-12-12</td>
<td>30000</td>
<td>M</td>
</tr>
<tr>
<td>4</td>
<td>Sangeeta</td>
<td>35</td>
<td>History</td>
<td>1999-07-01</td>
<td>40000</td>
<td>F</td>
</tr>
<tr>
<td>5</td>
<td>Rakesh</td>
<td>42</td>
<td>Maths</td>
<td>1997-09-05</td>
<td>25000</td>
<td>M</td>
</tr>
<tr>
<td>6</td>
<td>Shyam</td>
<td>51</td>
<td>History</td>
<td>1997-02-27</td>
<td>30000</td>
<td>M</td>
</tr>
<tr>
<td>7</td>
<td>Shiv Om</td>
<td>44</td>
<td>Computer</td>
<td>1997-02-25</td>
<td>21000</td>
<td>M</td>
</tr>
<tr>
<td>8</td>
<td>Shalakha</td>
<td>33</td>
<td>Maths</td>
<td>1997-03-31</td>
<td>20000</td>
<td>F</td>
</tr>
</tbody>
</table>

i. To show all information about the teachers who have joined after 31st March 1997.
ii. To list the names of male teachers who are in Maths department
iii. To list names of all teachers earning below 25000 with their year of joining.
iv. To display the position of ‘a’ in name in every row.
v. To list the name concatenated with their department of all male teachers.
vi. To increase the salary of computer teachers by 20000.

vii. `SELECT No, Name FROM Teacher WHERE AGE>34;`

viii. `SELECT NAME , SALARY FROM Teacher WHERE (SELECT RIGHT(NAME,1)='M');`

ix. `SELECT NAME FROM Teacher WHERE NAME LIKE '_h%';`

x. `SELECT NAME, DEPARTMENT FROM Teacher WHERE AGE IN(30,31,32);`
7. (a) What is the purpose of column alias? Write an example. (2)

(b) Write the SQL query to create the following table.

**Table: SalesPerson**

<table>
<thead>
<tr>
<th>Column Name</th>
<th>Data Type</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNum</td>
<td>INT</td>
<td>6</td>
</tr>
<tr>
<td>SFName</td>
<td>VARCHAR</td>
<td>25</td>
</tr>
<tr>
<td>SLName</td>
<td>VARCHAR</td>
<td>25</td>
</tr>
<tr>
<td>City</td>
<td>VARCHAR</td>
<td>10</td>
</tr>
<tr>
<td>Sales</td>
<td>DECIMAL</td>
<td>7.2</td>
</tr>
<tr>
<td>Comm</td>
<td>DECIMAL</td>
<td>7.2</td>
</tr>
</tbody>
</table>

(c) Write SQL commands for the following using above table:

i) To add a new column PhoneNo to the above table.

ii) Remove the row having SNum as 20.

iii) To select all the rows of the table.

iv) To display the cities of all SalesPerson, without duplicates. (4)

8. (a) What is e-learning? (1)

(b) List the advantages of e-Governance. (2)

(c) Write two important features of e-Business. Give two most commonly used e-Business sites. (2)

**************************GOOD LUCK**************************