XII INFORMATICS PRACTICES

CBSE Board – 2013

[Time allowed: 3hours] *[Maximum Marks: 70]*

Instructions *(i)* ***All*** *questions are compulsory*
(ii) Programming Language: C++

1(a)	Write the name of the most suitable wireless communication channels for each of the following situations. (i) Communication between two offices in different countries. (ii) To transfer the data from one mobile phone to another.	**1**
Ans:	(i) Satellite (ii) Bluetooth	
(b)	What is UNICODE? Name one Indian language, which is supported by UNICODE.	**1**
Ans:	Unicode provides a unique number for every character, no matter what the platforms, no matter what the program, no matter what the language. **Following are some Indian language, which is supported by UNICODE.** Devnagari, Bengali, Gurmukhi, Gujarati, Kannada, Malayalam, Oriya, Tamil, Arabic, Telugu	
(c)	Expand the following terms: (i) FLOSS (ii) HTTP	**1**
Ans:	(i) FLOSS : **F**ree **L**ibre and **O**pen **S**ource **S**oftware (ii) HTTP : **H**yper **T**ext **T**ransfer **P**rotocol	
(d)	Mr. Chandervardhan is not able to identify the Domain Name in the given URL. Identify and write it for him. http://www.cbsenic.in/aboutus.htm	**1**
Ans:	**Domain Name** : cbsenic.in	
(e)	What do you understand by Network Security? Name two common threats to it.	**2**
Ans:	Network security is needed to protect data during their transmission and to guarantee that data transmissions are authentic. 1. Trojan horse programs 2. Worms	
(f)	Write one advantage of Star Topology over Bus Topology and one advantage of Bus Topology Over Star Topology.	**2**
Ans:	**<u>Advantage of Star Topology over Bus Topology</u>** In Star Topology, failure of one node or link doesn't affect the rest of network whereas, In Bus Topology, the main cable (i.e. bus) encounters some problem, whole network breaks down. **<u>Advantages of Bus Topology Over Star Topology</u>** Bus Topology requires less cable length than a star topology.	
(g)	What is MAC address? What is the difference between MAC address and an IP address?	**2**
Ans:	A **Media Access Control** address (MAC address) is a unique identifier assigned to most network adapters or network interface cards (NICs) by the manufacturer for identification, and used in the Media Access Control protocol sub-layer. **<u>Difference between MAC address and an IP address</u>** 1. MAC address is supposedly unique to each network interface card while an IP address is usually replaced 2. An IP address reveal which element on which network it is while the same cannot be extracted from a MAC address	
2(a)	Which property of palette ListBox is used to enter the list of items while working in NetBeans?	**1**
Ans:	model property	

(b)	What is the difference between the use of **JTeaxtField** and **JPasswordField** in a form?	**1**
Ans:	When we type text into a JTextField control, it shows the characters in the control, but in JPasswordField control the typed characters are shown as ( ) for security. ●	
(c)	"The variable/expression in the switch statement should either evaluate to an integer value or String value." State True or False.	**1**
Ans:	True	
(d)	Name two attributes of FONT tag of HTML.	**1**
Ans:	1. Size 2. Face 3. Color	
(e)	How many times will the following loops execute? Which one of them is Entry Control and which one is Exit Control?	**2**

Loop 1

```
int  i=10,  sum=0;
while (i>1)
{
   sum+=i;
   i-=3;
}
```

Loop 2

```
int  i=10,  sum=0;
do
{
   sum+=i;
   i-=3;
} while (i>1);
```

Ans:	Following loops will execute 3 times. Loop 1 is Entry control loop and Loop 2 is Exit control loop.	
(f)	What will be displayed in jTextField1 and jTextField2 after the execution of the following loop?	**2**

```
int Sum=0,Last=10;
for (int C=1;C<=Last;C+=2)
   Sum++;
   jTextField1.setText(Integer.toString(Sum));
   jTextField2.setText(Integer.toString(C));
```

Ans:	Since C is local variable to the for loop only due which it can't be accessible at line no 4 and 5.	

Correct code

```
int Sum=0,Last=10;
for (int C=1;C<=Last;C+=2)
{
   Sum++;
   jTextField1.setText(Integer.toString(Sum));
   jTextField2.setText(Integer.toString(C));
}
```

Output:

jTextField1 – 5
jTextField2 – 9

(g)	Differentiate between the <TR> and <TD> tags of HTML with the help of an appropriate example.	**2**
Ans:	<TR> defines table row Whereas, <TD> defines table data (cell). Example:	

```
<HTML>
<BODY>
<TABLE BORDER>
<TR>
      <TD>1</TD>
       <TD>2</TD>
</TR>
```

	<TR> <TD>3</TD> <TD>4</TD> </TR> </TABLE> </BODY> </HTML>	
3(a)	Write a SQL command to view the constraints of EMP table.	**1**
Ans:	SHOW TABLE EMP; OR Select * from information_schema.key_column_usage where constraint_schema = 'EMP';	
(b)	Mr. Krishnaswami is working on a database and has doubt about the concept of SAVEPOINT in a transaction. Write down the meaning of SAVEPOINT and provide a simple example considering yourself as an online web support executive.	**1**
Ans:	SAVEPOINT is a point in a transaction, up till which all changes have been saved permanently. **EXAMPLE:** mysql> mysql> CREATE TABLE Books -> (-> BookID SMALLINT NOT NULL PRIMARY KEY, -> BookTitle VARCHAR(60) NOT NULL, -> Copyright YEAR NOT NULL ->) -> ENGINE=INNODB; Query OK, 0 rows affected (0.00 sec) mysql> mysql> START TRANSACTION; Query OK, 0 rows affected (0.00 sec) mysql> INSERT INTO Books VALUES (103, 'Opera', 1966); Query OK, 1 row affected (0.00 sec) mysql> INSERT INTO Books VALUES (104, 'Sql Server', 1932); Query OK, 1 row affected (0.00 sec) mysql> SAVEPOINT sp1; Query OK, 0 rows affected (0.00 sec) mysql> mysql> mysql> drop table Books; Query OK, 0 rows affected (0.00 sec)	
(c)	What is the difference between CURDATE () and DATE () functions?	**1**
Ans:	CURDATE () returns the current date whereas, DATE () extracts the date part of a date or datetime expression.	
(d)	Table STUDENT has 4 rows and 2 columns. Table MARKS has 2 rows and 3 columns. How will be the cardinality and degree of the Cartesian product of STUDENT and MARKS?	**1**
Ans:	The cardinality is 8 and degree is 5 of the Cartesian product of STUDENT and MARKS.	
(e)	There is a column Salary in a Table EMPLOYEE. The following two statements are giving different outputs.	**2**

	What may be the possible reason? SELECT COUNT(*) FROM EMPLOYEE; SELECT COUNT(SALARY) FROM EMPLOYEE;	
Ans:	If SALARY column is defined as NULL and then if any employee's salary is missing then count function will not count those null valued salary. For example if EMPLOYEE table contains 10 record of employees and out of 10 employees say 7th employee's salary is not entered then output will be 10 and 9 for respective queries.	
(f)	Mr. Kapoor is a programmer at Ekansh Enterprises. He created 5 digit password and stored in a string variable called strPassword. He wants to store the same password in an Integer type variable called intPassword. Write an appropriate Java statement to transfer the content from strPassword to intPassword.	**2**
Ans:	int intPassword=Integer.parseInt(strPassword);	
(g)	Mrs. Kumar is using table STUDENTS with the following columns: RNO, ADMNO, NAME, AGGREGATE She wants to display all information of students in descending order of name and within ascending order of aggregate. She wrote the following SQL query and she did not get the desired output: SELECT * FROM STUDENTS ORDER BY NAME, AGGREGATE DESC;	**2**
Ans:	SELECT * FROM STUDENTS ORDER BY AGGREGATE, NAME DESC;	
4(a)	What will be the context of jTextArea1 and jTextField1 after the execution of the following statements? (i) jTextArea1.setText("Just\tAnother\nDay"); (ii) string Subject="Informatics Practices"; jTextField1.setText((Subject.length()+10)+" ");	**2**
Ans:	(i) Just Another Day (ii) 31	

(b)	Rewrite the following program code using a if statement.
	String Remarks;
	int Code=Integer.parseInt(jTextField1.getText());
	switch(Code)
	{
	case 0 :Remarks="100% Tax Exemption";
	break;
	case 1 : Remarks="50% Tax Exemption";
	break;
	case 2 : Remarks="3% Tax Exemption";
	break;
	default: Remarks="! Invalid Entry";
	}
		2

Ans:	String Remarks;
	int Code=Integer.parseInt(jTextField1.getText());
	if(Code ==0)
	Remarks="100% Tax Exemption";
	else if(Code ==1)
	Remarks="50% Tax Exemption";
	else if(Code ==2)
	Remarks="30% Tax Exemption";
	else
	Remarks="! Invalid Entry";	

(c)	Observe the following code carefully and find which statement will never get executed in the code?
	int t=1; //Statement 1
	do //Statement 2
		1

```
{                                          //Statement 3
        if (t>13)                          //Statement 4
          jTextField1.setText("Something"); //Statement 5
        else                               //Statement 6
          jTextField1.setText("Pass");     //Statement 7
        t+=3;                              //Statement 8
}                                          //Statement 9
while (t<=15);                             //Statement 10
```

Ans: Statement 5

(d) Write a java statement to make the **jTextField1** non-editable. **1**

Ans: jTextField1.setEditable(false);

(e) What will be the displayed in jTextField1 and jTextField2 after the execution of the following code? **2**

```
int Last,First=3,Second=5;
Last=First+Second++;
jTextField1.setText(Integer.toString(Last));
jTextField2.setText(Integer.toString(Second));
```

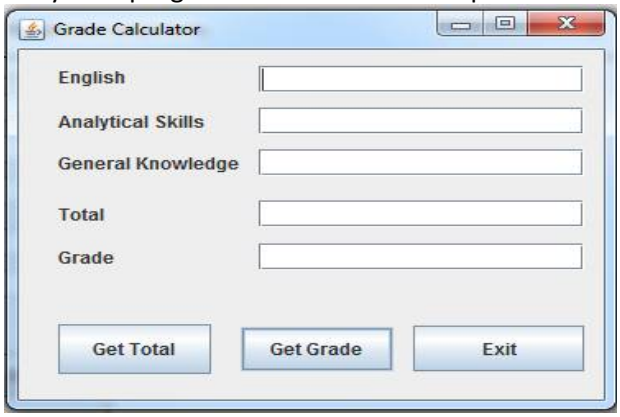
Ans: jTextField1 – 8
jTextField2 – 6

(f) What will be the contents of Str1 and Str2 after the following code is executed? **2**

```
String Str2,Str1;
Str1="Dear Friend";
Str2="Hello";
Str1=Str2.concat(Str1);
```

Ans: Str1 - HelloDear Friend
Str2 - Hello

(g) Aditya is a programmer at Edudel enterprises. He created the following GUI in NetBeans. **5**



Help him to write code in java for the following:

(i) To calculate Total marks obtained and display in jTextField4 on the click of command button “Get Total”. **2**

(ii) To calculate Grade obtained and display in jTextField5 on the click of command button “Get Grade”. Criteria for Grade calculation is given below: **2**

Marks	Grade
Above 80	A
Above 65 and <=55	B
Above 50 and <=65	C
<=50	D

(iii) To stop execution and exit from the application on the click of command button “Exit”. **1**

Ans:

(i)
```
private void jButton1ActionPerformed(java.awt.event.ActionEvent evt)
{
        int a=Integer.parseInt(jTextField1.getText());
        int b=Integer.parseInt(jTextField2.getText());
        int c=Integer.parseInt(jTextField3.getText());
       int total=a+b+c;
       jTextField4.setText(Integer.toString(total));
 }
```
(ii)
```
private void jButton2ActionPerformed(java.awt.event.ActionEvent evt)
{
        int t=Integer.parseInt(jTextField4.getText());
        int a=t/3;
        if(a>=80)
        {
            jTextField5.setText("A");
        }
        else if(a>65 && a<=55)
        {
            jTextField5.setText("B");
        }
        else if(a>50 && a<=65)
        {
            jTextField5.setText("C");
        }
        else if(a<=50)
        {
       jTextField5.setText("D");
   }
 }
```
(iii)
```
private void jButton3ActionPerformed(java.awt.event.ActionEvent evt)
{
            System.exit(0);
     }
```

5(a) What is the use of COMMIT statement in SQL? How is it different from ROLLBACK statement? **2**

Ans: The COMMIT statement is used to end a transaction and make all changes permanent.

COMMIT	ROLLBACK
COMMIT command permanently saves the changes made during the transaction execution.	ROLLBACK command undoes the changes made during the transaction execution.
Syntax: COMMIT[WORK];	Syntax: ROLLBACK[WORK];

(b) Mr. James created a table **CLIENT** with 2 rows and 4 columns. He added 2 more rows to it and deleted one column. What is the Cardinality and Degree of the Table **CLIENT**? **1**

Ans: **Cardinality** – 4
Degree – 3

(c) Consider the following table **FITNESS** with details about fitness products being sold in the store. Write command of SQL for (i) to (iv) and output for (v) to (vii). **7**

Table: **FITNESS**

PCODE	PNAME	PRICE	MANUFACTURER
P1	Treadmill	21000	Coscore
P2	Bike	20000	Aone

P3	Cross Trainer	14000	Reliable
P4	Multi Gym	34000	Coscore
P5	Massage chair	5500	Regrosene
P6	Belly Vibrator Belt	6500	Ambaway

(i) To display the names of all the products with price more than 20000.
(ii) To display the names of all products by the manufacturer "Aone".
(iii) To change the price data of all the products by applying 25% discount reduction.
(iv) To add a new row for product with the details: "P7", "Vibro Exerciser", 28000, "Aone".
(v) SELECT * FROM FITNESS WHERE MANUFACTURER NAME LIKE "%e";
(vi) SELECT COUNT (DISTINCT (MANUFACTURER)) FROM FITNESS;
(vii) SELECT MAX (PRICE) FROM FITNESS;

Ans:

(i) SELECT PNAME,PRICE FROM FITNESS WHERE PRICE>20000;
(ii) SELECT PNAME FROM FITNESS WHERE MANUFACTURER="Aone";
(iii) UPDATE FITNESS SET PRICE=PRICE-(PRICE*25/100);
(iv) INSERT INTO FITNESS VALUES("P7","Vibro Exerciser","28000","Aone");
(v) In this query, the column name is MANUFACTURER NAME instead of MANUFACTURE so it will generate an error.
The correct Query is SELECT * FROM FITNESS WHERE MANUFACTURER LIKE "%e";

Output:

PCODE	PNAME	PRICE	MANUFACTURER
P1	Treadmill	21000	Coscore
P2	Bike	20000	Aone
P3	Cross Trainer	14000	Reliable
P4	Multi Gym	34000	Coscore
P5	Massage chair	5500	Regrosene

(vi) **COUNT(DISTINCT(MANUFACTURER))**
5

(vii) **MAX(PRICE)**
6500

6(a) Write SQL command to create the table VEHICLE with given constraint: **2**

Table : **VEHICLE**

COLUMN_NAME	DATATYPE(SIZE)	CONSTRAINT
RegNo	CHAR(10)	Primary Key
Regdate	DATE	
Owner	VARCHAR(30)	
Address	VARCHAR(40)	

Ans: CREATE TABLE VEHICLE(RegNo CHAR(10) PRIMARY KEY, Regdate DATE, Owner VARCHAR(30), Address VARCHAR(40));

(b) In a database BANK, there are two tables with a sample data given below: **6**

Table : **EMPLOYEE**

ENO	ENAME	SALARY	ZONE	AGE	GRADE	DEPT
1	Mona	70000	East	40	A	10
2	Muktar	71000	West	45	B	20
3	Nalini	60000	East	26	A	10
4	Sanaj	65000	South	36	A	20

	5	Surya	58000	North	30	B	30

Table : **DEPARTMENT**

DEPT	DNAME	HOD
10	Computers	1
20	Economics	2
30	English	5

Note:

- ENAME refers to Employee Name
- DNAME refers to Department Name
- DEPT refers to Department Code
- HOD refers to Employee number (ENO) of the Head of the Department

Write SQL queries for the following:

(i) To display ENO, ENAME, SALARY and corresponding DNAME of all the employees whose age is between 25 and 35 (both values inclusive). **2**

(ii) To display DNAME and corresponding ENAME from the tables DEPARTMENT and EMPLOYEE. **Hint**: HOD of the DEPARTMENT table should be matched with ENO of the EMPLOYEE table for getting the desired result. **2**

(iii) To display ENAME, SALARY, ZONE and INCOME TAX (Note: Income Tax to be calculated as 30% of salary) of all the employees with appropriate column headings. **2**

Ans:

(i) SELECT C.ENO,C.ENAME,C.SALARY,D.DNAME FROM EMPLOYEE C,DEPARTMENT D WHERE C.DEPT=D.DEPT AND C.AGE>=25 && C.AGE<=35;

(ii) SELECT D.DNAME,C.ENAME FROM EMPLOYEE C,DEPARTMENT D WHERE C.DEPT=D.DEPT AND C.ENO=D.HOD;

(iii) SELECT ENAME,SALARY,ZONE, (SALARY*30)/100 AS "INCOME TAX" FROM EMPLOYEE ;

(c) In a database STUDENT, there is a Table RESULT with the following contents: **2**

Table :**RESULT**

REGNO	NAME	MARKS	SECTION	CLASSTEACHER	ADMNO
10004	Mohit	90	A	Ms Nathani	Z101
10211	Mukta	85	B	Mr. Gokhle	Z109
10923	Mohit	92	B	Mr. Gokhle	Z120
10313	Sana	80	A	Ms Nathani	Z234

(i) Identify the attributes, which can be chosen as Candidate Keys in the table RESULT. **1**

(ii) Write SQL Query to change the Marks of Mukta to 95 in the table RESULT. **1**

Ans:

(i) **REGNO** and **ADMNO** can be chosen as Candidate Keys in the table RESULT.

(ii) UPDATE RESULT SET MARKS=95 WHERE NAME=”Mukta”;

7(a) How has popularity of e-Business benefited a common man? Write domain name of one popular e-Business site as an example. **2**

Ans: **Benefit** :

- ✓ Improved speed of response
- ✓ Cost savings
- ✓ Improved communications, information and knowledge sharing
- ✓ Reductions in inventory
- ✓ Improved efficiency and productivity
- ✓ Better transfer of best practices
- ✓ Improved customer service

Domain name:

- ✓ yatra.com

(b) Give domain names of two most commonly used e-Commerce site. **1**

Ans:

1. ebay.in
2. amazon.com

(c) Shobhit is creating a form for his company. Help her to choose most appropriate controls from ListBox, ComboBox, TextField, TextArea, RadioButton, CheckBox, Label and Command Button for the following entries: **2**

SNo	Function
1	To enter NATIONALITY from all the nationalities given as options
2	To enter AGE between a range 20 to 25
3	To allow to select one or more FAVORITE SPORTS out of the given 6 options
4	To enter SUGGESTION in the form of a paragraph

Ans:

SNo	Function	Control
1	To enter NATIONALITY from all the nationalities given as options	ComboBox
2	To enter AGE between a range 20 to 25	ComboBox
3	To allow to select one or more FAVORITE SPORTS out of the given 6 options	CheckBox
4	To enter SUGGESTION in the form of a paragraph	TextArea