

Sample Paper-2011

Class : XII
Subject : Informatics Practices

MM : 70
Time : 3 hours

General Instructions :

1. This question paper is divided into three sections
2. Section – A consists 30 marks.
3. Section – B is of 20 marks each
4. Section – C is of 20 marks each
5. Attempt all the parts of a section together.

Section – A

Answer the following questions:

- 1 Expand the terms : FLOSS, PHP, GPL, FSF 1
- 2 What are the following softwares used for? 2
 (i) Apache (ii) Tomcat (iii) PHP (iv) Python
- 3 What is Unicode? What is ISCII? 2
- 4 Differentiate between a hub and a switch. 1
- 5 Acme Education has set up its new branch at Jaipur for its office and web based activities. It has 4 wings of buildings as shown in diagram:



Center to center distances between various blocks

Wing X to Wing Z	50 m
Wing Z to Wing Y	70 m
Wing Y to Wing X	125 m
Wing Y to Wing U	80 m
Wing X to Wing U	175 m
Wing Z to Wing U	90 m

Number of computers

Wing X	50
Wing Z	30
Wing Y	150
Wing U	15

- (i) Suggest the most placement of Repeater and switch with justification. 2
- (ii) Suggest most suitable place to house the server. 1
- (iii) Suggest the most suitable cable layout and topology between various wings. 1

Answer the following questions:

- 6 How is Java compilation different from other compilation? 2
- 7 Give one similarity and one difference between a checkbox and a radio button 2
- 8 Differentiate between a container and a component with suitable examples. 2
- 9 Write two differences between a listbox and combobox. 2
- 10 Explain getText() and setText() methods. 2

Answer the following questions:

- 11 Differentiate between Char and Varchar datatypes. 2
- 12 How do we restrict duplicate rows in SQL SELECT Query? Give example 1
- 13 Explain COMMIT,SAVEPOINT and ROLLBACK with suitable examples. 2
- 14 What is SQL? What are the different categories of SQL commands? 2
- 15 What is a natural join? Give an example. 1
- 16 Explain the primary key constraint and foreign key constraint. Give examples using table creation commands. 2

Section – B

Read the following case study and answer the questions that follow.

TeachWell Public School wants to computerize the employee salary section.

The School is having two categories of employees : Teaching and Non Teaching. The Teaching employees are further categorized into PGTs, TGTs and PRTs having different Basic salary.

The School gives addition pay of 3000 for employees who are working for more than 10 years.

Employee Type	Basic Salary	DA (% of Basic Sal)	HRA (% of Basic Sal)	Deductions (% of Basic sal)
Non Teaching	12500	31	30	12
PGT	14500	30	30	12
TGT	12500	21	30	12
PRT	11500	20	25	12

- 17 Write the code to calculate the Basic salary, deductions, gross salary and net salary based on the given specification. 4
Add 3000 to net salary if employee is working for more than 10 years.
Gross salary=Basic salary + DA + HRA
Net salary = Gross salary – deductions
- 18 Write the code to clear all textfields, uncheck checkbox and set non teaching as the default category. 2
- 19 Write the code to exit the application. Also display a message "Thank you" before exiting the application. 2
- 20 Write the code to disable textfields for gross salary, deductions and netsalary. 2
- 21 Write the output of the following code 2

```
int j = 10,x=0,i=0;
for (i = 1;i<=4;i++)
{
    if(i%2==0)
        x = x+ (i * j);

    j = j - 2 ;
}
System.out.println(x);
```
- 22 Rewrite the corrected program after removing syntax errors, underline the corrections 2

```
integer P=1 ;
integer C =1;
FOR C=1 TO 10
    P = P+1
    IF P = 5 THEN
        P = 1
        DISPLAY "P is equal to 5"
    ELSE
        DISPLAY "P is not equal to 5"
```
- 23 Rewrite the following code using if..else if without effecting the output of the code: (Any four) 2

```
switch(per)
{
case 90 :
    System.out.println("A1"); break;
case 80 :
    System.out.println("A2"); break;
case 70 :
    System.out.println("B1"); break;
```

```

case 60 :
    System.out.println("B2");    break;
case 50 :
    System.out.println("C1");    break;
default:
    System.out.println("D1");    break;
}

```

- 24 Write the following code segment using **for...** loop without effecting the output of the code: 2
- ```

int Num=6;
int Temp=Num;
while (Num>=1)
{ Temp=Temp-1;
 if (Temp% 2== 0)
 System.out.println(" is Even");
 else
 System.out.println(" is Odd");
 Num=Num-2;
}

```
- 25 Write the code to print the sum of digits of a number. 2

### Section C

Table : Student

| Enrno | Name     | DOB       | Class |
|-------|----------|-----------|-------|
| 1001  | anugraha | 2000-10-7 | 7     |
| 1002  | alvin    | 2002-5-8  | 5     |
| 1003  | aswin    | 2003-5-5  | 7     |
| 1004  | ashish   | 2004-6-7  | 5     |

Table : Marks

| Enrno | TMarks | TDate     |
|-------|--------|-----------|
| 1001  | 88.38  | 2010-8-10 |
| 1003  | 85.58  | 2010-7-10 |

- 26 Write sql queries:
- To display Enrno, name of all students of class 7 and class 5. 1
  - To create a equi join displaying enrno, name, tmarks and tdate. 1
  - To display all related columns of both tables eliminating the identical columns. 1
  - To display all columns of table **Student** even if it does not have matching values in the table **Marks**. 1
  - To display a Cartesian product of table **Student** and table **Marks**. 1
  - To add a column **Address – Varchar(35)** to table Student. 1
  - To modify the column **Address – Varchar(45)** of table Student. 1
  - To change the class of Ashish from 5 to 6 of table **Student**. 1
- 27 Write the output:
- Select UCase(Name) from Student where class>5; 1
  - Select MOD(ROUND(Tmarks,0),2) from Marks; 1
  - Select Substr(Name,2,2) from Student where enrno=1001; 1
  - Select Truncate(Tmarks,1) from Marks; 1
  - Select Round(Tmarks,1) from Marks; 1
  - Select concat(UCase(Left(Name,2)) , Right(Name, length(name)-1)) from Student where Enrno=1001; 1
  - Select Count(Distinct Class) from Student; 1
  - Select class,sum(enrno),min(enrno) from Student group by class; 1

- 28 Create table **Student** as per the specifications given below: 2

| Column Name | Type    | Length | Constraint  |
|-------------|---------|--------|-------------|
| Enrno       | Integer | 5      | Primary Key |
| Name        | Varchar | 25     | NOT NULL    |
| DOB         | Date    |        |             |
| Class       | Integer | 3      | >=1         |

- 29 Create table **Marks** as per the specifications given below: 2

| Column Name | Type    | Length | Constraint                   |
|-------------|---------|--------|------------------------------|
| Enrno       | Integer | 5      | Foreign key =>Student(Enrno) |
| TMarks      | Integer | 3      | Between 0 and 100            |
| TDate       | Date    |        |                              |

# Sample Paper-2011

## ANSWER KEY

**Class : XII**  
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### Section – A

**Answer the following questions:**

1            Expand the terms : FLOSS, PHP, GPL, FSF 1  
**Ans**       FLOSS - Free Libre Open Source Software  
               PHP – PHP :Hypertext Preprocessor  
               GPL – General Public License  
               FSF – Free Software Foundation

2            What are the following softwares used for? 2  
               (i)Apache            (ii) Tomcat            (iii) PHP            (iv) Python  
**Ans**       (i) Apache        - Web server  
               (ii) Tomcat       - Servlet container and independent web server  
               (iii) PHP            - Open source programming language  
               (iv) Python       - Interpreted, interactive programming language

3            What is Unicode? What is ISCII? 2  
**Ans**       Unicode is a universal coding standard adopted by all newer platforms , contains 94140 characters  
               ISCII – Indian Standard/Scripts code for information interchange. 8 digit code to represent Indian scripts.

4            Differentiate between a hub and a switch. 1  
**Ans**       Hub is cheaper than switch  
               Switch is full duplex while hub is half duplex

5            Acme Education has set up its new branch at Jaipur for its office and web based activities. It has 4 wings of buildings as shown in diagram:



Center to center distances between various blocks

|                  |       |
|------------------|-------|
| Wing X to Wing Z | 50 m  |
| Wing Z to Wing Y | 70 m  |
| Wing Y to Wing X | 125 m |
| Wing Y to Wing U | 80 m  |
| Wing X to Wing U | 175 m |
| Wing Z to Wing U | 90 m  |

Number of computers

|        |     |
|--------|-----|
| Wing X | 50  |
| Wing Z | 30  |
| Wing Y | 150 |
| Wing U | 15  |

- (i)            Suggest the most placement of Repeater and switch with justification. 2  
**Ans**       Repeater between (Y and X) and between (X and U) 1  
               Switch should be placed in all wings 1
- (ii)           Suggest most suitable place to house the server. 1  
**Ans**       **Wing Y**
- (iii)           Suggest the most suitable cable layout and topology between various wings.  
**Ans**       Star topology

**Answer the following questions:**

6            How is Java compilation different from other compilation? 2  
**Ans**       Ordinary compilation converts a source code directly into machine language which is machine dependent while java compilation converts a source code into byte code which is machine independent.

- 7 Give one similarity and one difference between a checkbox and a radio button 2  
**Ans** Both are used to select from a group while a one of the radio button can be selected from the group and none to many checkboxes can be selected from a group.
- 8 Differentiate between a container and a component with suitable examples. 2  
**Ans** Container can hold other controls while a component can not.
- 9 Write two differences between a listbox and combobox. 2  
**Ans** Listbox is readonly and allows multiple selections.
- 10 Explain getText() and setText() methods. 2  
**Ans** getText() – Returns the text from GUI component.  
 setText() – Assign a text to GUI component.

**Answer the following questions:**

- 11 Differentiate between Char and Varchar datatypes. 2  
**Ans**
- |                                                                              |                                               |
|------------------------------------------------------------------------------|-----------------------------------------------|
| Char                                                                         | Varchar                                       |
| Fixed Length string<br>Spaces are added if data is less than specified size. | Variable length string<br>No spaces are added |
- 12 How do we restrict duplicate rows in SQL SELECT Query? Give example 1  
**Ans** Using DISNTINCT keyword  
 Select Distinct job from empl.
- 13 Explain COMMIT,SAVEPOINT and ROLLBACK with suitable examples. 2  
**Ans** COMMIT- Make changes permanent  
 ROLLBACK – Undo the changes  
 SAVEPOINT – Creates breakpoints for partial rollback
- 14 What is SQL? What are the different categories of SQL commands? 2  
**Ans** SQL- Structure query language
- 15 What is a natural join? Give an example. 1  
**Ans** Equi Join minus identical column
- 16 Explain the primary key constraint and foreign key constraint. Give examples using table creation commands. 2  
**Ans** Primary Key – A column or group of column which uniquely identifies a record.  
 Foreign key – A non key attribute that draws values from primary key of another table.

**Section – B**

**Read the following case study and answer the questions that follow.**

TeachWell Public School wants to computerize the employee salary section.  
 The School is having two categories of employees : Teaching and Non Teaching. The Teaching employees are further categorized into PGTs, TGTs and PRTs having different Basic salary.  
 The School gives addition pay of 3000 for employees who are working for more than 10 years.

| Employee Type | Basic Salary | DA (% of Basic Sal) | HRA (% of Basic Sal) | Deductions (% of Basic sal) |
|---------------|--------------|---------------------|----------------------|-----------------------------|
| Non Teaching  | 12500        | 31                  | 30                   | 12                          |
| PGT           | 14500        | 30                  | 30                   | 12                          |
| TGT           | 12500        | 21                  | 30                   | 12                          |
| PRT           | 11500        | 20                  | 25                   | 12                          |

- 17 Write the code to calculate the Basic salary, deductions, gross salary and net salary based on the given specification. 4  
**Add 3000 to net salary if employee is working for more than 10 years.**  
**Gross salary=Basic salary + DA + HRA**  
**Net salary = Gross salary – deductions**

|                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Ans</b></p>                                                                                                                                                                                     | <pre>double bs=0,da=0,net=0,ded=0,gross=0,hra=0; if (rdnon.isSelected()==true) {     bs=12500;     da=(31*bs)/100;     hra=(30*bs)/100;     ded=(12*bs)/100; } else if (rdpgt.isSelected()==true) {     bs=14500;     da=(30*bs)/100;     hra=(30*bs)/100;     ded=(12*bs)/100; } else if (rdtgt.isSelected()==true) {     bs=12500;     da=(21*bs)/100;     hra=(30*bs)/100;     ded=(12*bs)/100; }</pre> | <pre>else if (rdprt.isSelected()==true) {     bs=11500;     da=(20*bs)/100;     hra=(25*bs)/100;     ded=(12*bs)/100; } gross=bs+da+hra; net = gross - ded; if(chk10.isSelected()==true) {     net=net+3000; } tfded.setText(" "+ded); tfgross.setText(" "+gross); tfnet.setText(" "+net); tfbs.setText(" "+bs);</pre> |
| <p>18</p>                                                                                                                                                                                             | <p>Write the code to clear all textfields, uncheck checkbox and set non teaching as the default category. 2</p>                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                        |
| <p><b>Ans</b></p>                                                                                                                                                                                     | <pre>tfbas.setText(null); rdnon.setSelected(true);</pre>                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                        |
| <p>19</p>                                                                                                                                                                                             | <p>Write the code to exit the application. Also display a message "Thank you" before exiting the application. 2</p>                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                        |
| <p><b>Ans</b></p>                                                                                                                                                                                     | <pre>System.exit(0); JOptionPane.showMessageDialog(null,"Thank you");</pre>                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                        |
| <p>20</p>                                                                                                                                                                                             | <p>Write the code to disable textfields for gross salary, deductions and netsalary. 2</p>                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                        |
| <p>21</p>                                                                                                                                                                                             | <p>Write the output of the following code 2</p>                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                        |
| <pre>int j = 10,x=0,i=0; for (i = 1;i&lt;=4;i++) {     if(i%2==0)         x = x+ (i * j);      j = j - 2 ; } System.out.println(x);</pre>                                                             | <p><b>Output : 32</b></p>                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                        |
| <p>22</p>                                                                                                                                                                                             | <p>Rewrite the corrected program after removing syntax errors, underline the corrections(Any four) 2</p>                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                        |
| <pre>integer P=1 ; integer C=1 ; FOR C=1 TO 10     P = P+1     If (P=5)         P = 1;         DISPLAY "P is equal to 5";     ELSE         DISPLAY "P is not equal to 5";     C equal C PLUS 1;</pre> | <p><b>Corrected Code</b></p> <pre><b>int</b> P=1; <b>int</b> C=1; for(c=1;c&lt;=10;c=c+1) {     <b>If(P==5)</b>         P=1;         <b>System.out.println</b>("P is equal to 5");     else         <b>System.out.println</b>("P is equal to 5"); }</pre>                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                        |
| <p>23</p>                                                                                                                                                                                             | <p>Rewrite the following code using if..else if without effecting the output of the code: 2</p>                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                        |
| <pre>switch(per) {     case 90 :         System.out.println("A1"); break;     case 80 :         System.out.println("A2"); break;     case 70 :         System.out.println("B1"); break;</pre>         | <pre>if(per==90)     System.out.println("A1"); else if(per==80)     System.out.println("A2"); else if(per==70)     System.out.println("B1"); else     System.out.println("D1");</pre>                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                        |

```

case 60 :
 System.out.println("B2"); break;
case 50 :
 System.out.println("C1"); break;
default:
 System.out.println("D1"); break;
}

```

24 Write the following code segment using **for...** loop without effecting the output of the code: 2

|                                                                                                                                                                                        |                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <pre> int Num=6; int Temp=Num; while (Num&gt;=1) { Temp=Temp-1;   if (Temp% 2== 0)     System.out.println(" is Even");   else     System.out.println(" is Odd");   Num=Num-2; } </pre> | <pre> int Num=6; int Temp =Num; for(Num=6;Num&gt;= 1;Num=Num-2); {   Temp=Temp -1 ;   if(Temp%2==0)     System.out.println(" is Even");   else     System.out.println(" is Odd"); } </pre> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

25 Write the code to print the sum of digits of a number. 2

**Ans**

```

int r=0,s=0;
int n=Integer.parseInt(tf.getText());

while(n!=0)
{
 r=n%10;
 s=s+r;
 n=n/10;
}
System.out.println("Sum of digits is "+s);

```

### Section C

Table : Student

| Enrno | Name     | DOB       | Class |
|-------|----------|-----------|-------|
| 1001  | anugraha | 2000-10-7 | 7     |
| 1002  | alvin    | 2002-5-8  | 5     |
| 1003  | aswin    | 2003-5-5  | 7     |
| 1004  | ashish   | 2004-6-7  | 5     |

Table : Marks

| Enrno | TMarks | TDate     |
|-------|--------|-----------|
| 1001  | 88.38  | 2010-8-10 |
| 1003  | 85.58  | 2010-7-10 |

26 Write sql queries:

- (a) To display Enrno, name of all students of class 7 and class 5. 1  
**Ans** SELECT ENRNO,NAME FROM STUDENT WHERE CLASS =7 OR CLASS=5; 1
- (b) To create a equi join displaying enrno, name, tmarks and tdate. 1  
**Ans** SELECT \* FROM STUDENT,MARKS WHERE STUDENT.ENRNO=MARKS.ENRNO; 1
- (c) To display all columns of both tables eliminating the identical columns. 1  
**Ans** SELECT STUDENT.\*,MARKS,TDATE FROM STUDENT,MARKS WHERE 1  
 STUDENT.ENRNO=MARKS.ENRNO; 1
- (d) To display all columns of table **Student** even if it does not have matching values in the table **Marks**. 1  
**Ans** SELECT \* FROM STUDENT LEFT JOIN MARKS ON STUDENT.ENRNO=MARKS.ENRNO; 1
- (e) To display a Cartesian product of table **Student** and table **Marks**. 1  
**Ans** SELECT \* FROM STUDENT,MARKS; 1
- (f) To add a column **Address – Varchar(35)** to table Student. 1  
**Ans** ALTER TABLE STUDENT ADD ADDRESS VARCHAR(35); 1
- (g) To modify the column **Address – Varchar(45)** of table Student. 1  
**Ans** ALTER TABLE STUDENT MODIFY ADDRESS VARCHAR(45); 1
- (h) To change the class of Ashish from 5 to 6 of table **Student**. 1  
**Ans** UPDATE STUDENT SET CLASS=6 WHERE NAME="ASHISH"; 1

- 27 Write the output: **OUTPUT**
- |                                                                                                     |                        |   |
|-----------------------------------------------------------------------------------------------------|------------------------|---|
| (a) Select UCase(Name) from Student where class>5;                                                  | <b>ANUGRAHA ASHWIN</b> | 1 |
| (b) Select MOD(ROUND(Tmarks,0),2) from Marks;                                                       | <b>0</b>               | 1 |
| (c) Select Substr(Name,2,2) from Student where enrno=1001;                                          | <b>nu</b>              | 1 |
| (d) Select Truncate(Tmarks,1) from Marks;                                                           | <b>88.3 85.5</b>       | 1 |
| (e) Select Round(Tmarks,1) from Marks;                                                              | <b>88.4 85.6</b>       | 1 |
| (f) Select concat(UCase(Left(Name,2)) , Right(Name, length(name)-1)) from Student where Enrno=1001; | <b>Anugraha</b>        | 1 |
| (g) Select Count(Distinct Class) from Student;                                                      | <b>2</b>               | 1 |
| (h) Select class,sum(enrno),min(enrno) from Student group by class;                                 |                        |   |

| class | Sum(enrno) | Min(enrno) |
|-------|------------|------------|
| 7     | 2001       | 1001       |
| 5     | 2006       | 1002       |

- 28 Create table **Student** as per the specifications given below: 2

| Column Name | Type    | Length | Constraint  |
|-------------|---------|--------|-------------|
| Enrno       | Integer | 5      | Primary Key |
| Name        | Varchar | 25     | NOT NULL    |
| DOB         | Date    |        |             |
| Class       | Integer | 3      | >=1         |

**Ans CREATE TABLE STUDENT**  
**( ENRNO INT(5) NOT NULL,**  
**NAME VARCHAR(25) NOT NULL,**  
**DOB DATE ,**  
**CLASS INT(3) CHECK(CLASS>=1),**  
**PRIMARY KEY(ENRNO)**  
**) ENGINE=INNODB;**

- 29 Create table **Marks** as per the specifications given below: 2

| Column Name | Type    | Length | Constraint                   |
|-------------|---------|--------|------------------------------|
| Enrno       | Integer | 5      | Foreign key =>Student(Enrno) |
| TMarks      | Integer | 3      | Between 0 and 100            |
| TDate       | Date    |        |                              |

**Ans CREATE TABLE MARKS**  
**( ENRNO INT(5)**  
**TMARKS INT(3) CHECK(BETWEEN 0 AND 100),**  
**TDATE DATE,**  
**FOREIGN KEY(ENRNO) REFERENCES STUDENT(ENRNO)**  
**)ENGINE=INNODB;**

By **Bejoy Varghese**  
 Mobile : 9314501712  
 Email : [bejoyv@gmail.com](mailto:bejoyv@gmail.com) , [bejoyi@yahoo.com](mailto:bejoyi@yahoo.com)



Bejoy Varghese -9374501712