SAMPLE PAPER – 2017
INFORMATICS PRACTICES
Class – XII
(Based on CBSE Board Pattern)

Time allowed : 3 hours   Maximum Marks : 70

General Instructions :
   (i)   All questions are compulsory.
   (ii)   Answer the questions after carefully reading the text.

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1. (a) **Ridhima Singh** is a Data Entry Operator in **Purulia**. She has been given a job to create   2
         a LAN for the Data Entry of **SDMIS** and **UDISE** under **Purulia Municipality**. She is
         confused about the followings:
         (i)   Which communication media should be taken to create the LAN with a very
               high speed?
         (ii) Which network device should be chosen to connect the computers in the
               proposed LAN?
         Help her by suggesting the most appropriate solution for her problems.

   (b) Over internet, someone has stolen **Darshit Lath's** password and other personal   2
        information. What type of crime has been performed in this case? To whom **Darshit**
        will report about the wrong doing for legal help?

   (c) **Subhangi Chandak** is not able to understand the difference between **Freeware**   1
        and **Open Source Software**. Help her by witting at least one point of difference.

   (d) Name the network devices used for the given purposes: 2
        (i) To convert digital signals to analog and vice versa.
        (ii) To regenerate the data and voice signals over a network.

   (e) Name one long distance and one short distance communication channel for networks.   1

   (f) What do you mean by the terms Trojan and UNICODE?   2

2. (a) **Akriti Das** wants to store the value of an int variable **MyInt** into a string variable   1
        MyString. For that she has written the following commands. Identify the correct
        commands that will server her purpose.

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     (i)   MyString = " " + MyInt;   (ii) MyString = "MyInt ";

     (iii) MyString = String.valueOf(MyInt);   (iv) MyString = Integer.parseInt("MyInt");

(b) **Nishant Sharma** has written the following XML code: 2

     < AGCS class="XII" year="2016" >

   He is not able to identify its parts. Help him by doing so.

(c) What is the use of **Class.forName( )** method in Database Connectivity?   1

(d) Determine the output of the following code segment: 2

     int a= −3, b=2;

     int c= a++ + --b + --a – 5;

     System.out.println(a);

     System.out.println(++c);

     System.out.println(b-c);

(e) Write one similarity and one dissimilarity between **'+'** and **'++'** operators of Java. Give   2
    example showing the use of each operator.

(f) **Sonal Singhai** wants to produce the following table in HTML: 2

Stream	Com
	Sc

   Write HTML code to help her.

3. (a) **Amrit Agarwal** of **AGPN School, Purulia** has created the following **AGPN** table in MySQL: 2

Roll	Name	Age
15	Ankit	17
22	Sarvesh	18
10	Shalini	17
06	Subham	18
11	Khushboo	17

   Write down the output of the following commands:

     (i) SELECT LENGTH(MAX(Name)) FROM AGPN;

     (ii) SELECT MAX(LENGTH(Name)) FROM AGPN;

(b) Write one similarity and one dissimilarity between **CHAR** and **VARCHAR** data types.   2

(c) A table named 'Restaurant' with cardinality 5 and degree 17 is manipulated by   1

   Gourav Mohta of **Muchipara, Purulia** and after that the cardinality and degree of the

   table is 13 and 9 respectively. How many rows and columns are there in that table?

(d) **Komal Jhawar** of **AGCS, Purulia** has created the following two tables: 2

     Table : ClassXI   Table : ClassXII

Roll	Name	Stream		Roll	Name	Stream

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03	Niraj Lohia	Com
16	Akansha Saraogi	Com
19	Kunal Chakraborty	Sc
12	Hrishikesh Mukherjee	Com
04	Nisha Shukla	Com

21	Kanak Agarwal	Com
02	Aditi Karmakar	Com
17	Neha Agrahari	Com
19	Vandana Mall	Sc
11	Siddhi Lohariwal	Com
26	Swati Sarawagi	Com

She has written the following **Unions** based on the above two tables. Identify, which **Union** is invalid and why?

    (i)   SELECT Name, Stream FROM ClassXI

          UNION

          SELECT Name, Stream FROM ClassXII;

    (ii) SELECT Roll, Name, Stream FROM ClassXI

          UNION

          SELECT Name, Roll, Stream FROM ClassXII;

(e) **Prerana Agarwal** is working in **Teacher** table in MySQL, which is given below: 1

TId	TName	THouse	TDepartment
T0002	Mr. C. Francis	Buntain	English
T0005	Mr. M. Sao	Ketcham	Accountancy
T0006	Mrs. R. Neogi	Olson	English
T0008	Mr. G. Tiwari	NULL	Economics
T0015	Mr. D. Paul	Buntain	Biology
T0021	Mrs. R. Chail	Simpson	History

What will be the output of the following command written by her:

        SELECT COUNT(*), COUNT(THouse), COUNT(DISTINCT THouse) FROM Teacher;

(f) **Ankita Sarawagi** is confused about the concept of **NULL** in MySQL. She has few   2
unanswered questions, which are given below. Write the correct answer of the
following questions in brief to help her.

    (i)   What is the meaning of NULL in MySQL?

    (ii) Is it same as 0(zero)?

    (iii) How NULL is treated by the Aggregate/Group functions?

    (iv) What will be the value of the given query :

        SELECT 25 + 13/5 + NULL + 41 - 30*2;

4. (a) What do you mean by **Object Oriented Programming**?   1

    (b) Suppose **Var1** and **Var2** are two double type variables containing the values **4.6** and   2
       2.8 respectively. What will be stored in the int type variable **Result** after the execution

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of the given codes:

(i)   int Result = (int) Var1 + (int) Var2;

(ii) int Result = (int) (Var1 + Var2);

(c) **Sohail Khan** has got an error finding type question in Java. Help him to find out the   2
errors(s) in the given Java code and rewrite the corrected code by underlining all the
corrections made:

```
int a, b, p, h==0;
a=Integer.parseInteger(jTextField1.getText( ));
b= jTextField2.getText( );
p=a*b;
for(int i=1; i<p; i++)
   {
        if(a%i==0 & b%i==0)
        h=i;
   }
jTextField3(Integer.toString(h));
```

(d) What will be the value of **Q** if the initial value of **P** is **7**?   1

(i) Q = (3 * ++P);   (ii) Q = (3 * P++);

(e) How many times the following loop will execute? Whether the loop is 'Entry Controlled'   2
or 'Exit Controlled'?

```
int a=1, k=20;
while(k>=10)
   {
        a++;
        k=k-2;
        k=k-a;
   }
```

(f) Rewrite the given code by using **if statement** without changing the output: 2

```
int roll=Integer.parseInt(jTextField1.getText( ));
switch(roll)
   {
      case 3:
        System.out.println("Sonali Choudhury");   break;
      case 7:
        System.out.println("Sambhav Agarwal");  break;
```

```
        case 4:
            System.out.println("Bharat Somani");  break;
        case 12:
            System.out.println("Twinkle Sharma");   break;
        default:
            System.out.println("Unknown Entry");  break;
    }
```

(g) **Muskan Prasad** and **Dolly Agarwal** of **Assembly of God Church School, Purulia** have created a billing system for a renowned company in **Purulia** named **'BHARAT CEMENT'**. According to them a customer can purchase all or selected type of cement at a time. Number of bags to be purchased is to be entered for the selected cement type(s) in the corresponding textfields. The 'Calculated Amount' for a particular type of cement is to be calculated and displayed in the respective texfields. The 'Calculated Amount' for each type of cement is to be calculated as follows:
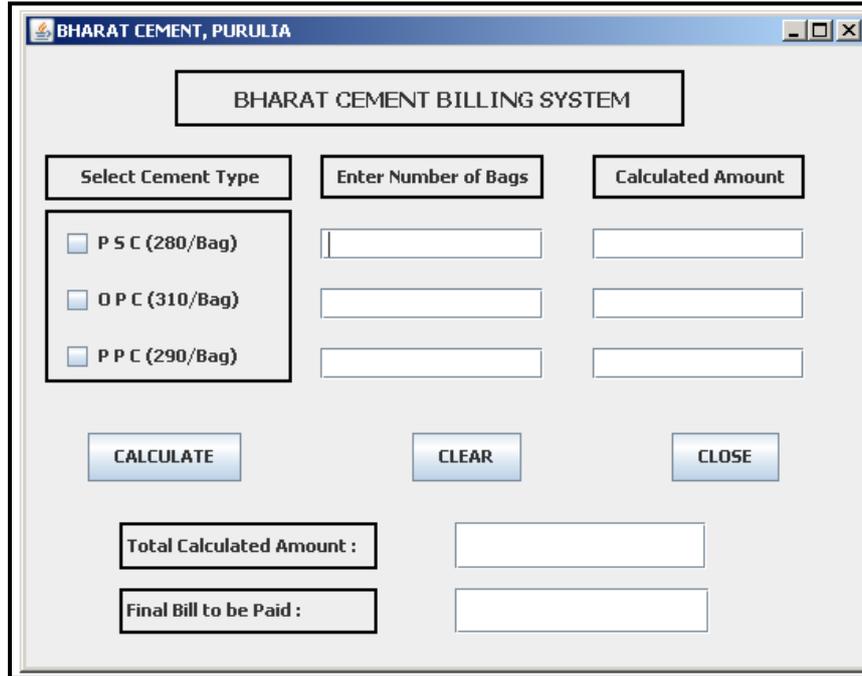
Calculated Amount = number of bags * price per bag.

The price per bag is given below:

Type of Cement	Price per Bag
P S C	Rs. 280
O P C	Rs. 310
P P C	Rs. 290

The 'Total Calculated Amount' is the sum of all the 'Calculated Amount'.

The company gives a discount of 5% on 'Total Calculated Amount' in case it is more than 100000. The 'Final Bill to be Paid' is to be calculated as Total Calculated Amount – discount.

The GUI developed by her is as follows:

Help her to write code to do the followings:

(i) After selecting cement type(s) and entering number of bags, when CALCULATE   3
button is clicked then calculate and display the 'Calculated Amount' for selected
type of cement. Also calculate and display the 'Total Calculated Amount', discount
and 'Final Bill to be Paid' according to the above mentioned criteria.

(ii) When CLEAR button is clicked then last two textfields will be cleared and the   1
first textfield should become uneditable.

(iii) When CLOSE button is clicked then the application should be terminated.   1

5. (a) A table named **Loan_Accounts** created by **Jagrit Lodha** exists in the MySQL database.   2
Write down the output of the following SQL commands based on the **Loan_Accounts**
table given below:

Table: Loan_Accounts

AccNo	Cust_Name	Loan_Amount	Instalments	Int_Rate	Start_Date
1	R. K. Gupta	300000	36	12.00	2009-07-19
2	S. P. Sharma	500000	48	10.00	2008-03-22
3	K. P. Jain	300000	36	NULL	2007-03-08
4	M. P. Yadav	800000	60	10.00	2008-12-06
5	S. P. Sinha	200000	36	12.50	2010-01-03
6	P. Sharma	700000	60	12.50	2008-06-05
7	K. S. Dhall	500000	48	NULL	2008-03-05

    (i) SELECT ROUND(Int_Rate*110/100, 2), TRUNCATE(Int_Rate, 0)
       FROM Loan_Accounts WHERE Int_Rate > 10;

    (ii) SELECT Instalments, SUM(Loan_Amount) FROM Loan_Accounts
       GROUP BY Instalments;

(b) Based on the above **Loan_Accounts** table (in Question No-5(a)), find the output of   2
the given SQL commands:

    (i) SELECT INSTR(Cust_Name, "Sh") FROM Loan_Accounts
       WHERE YEAR(Start_Date)>=2008;

    (ii) SELECT SUBSTR(Cust_Name, 7) FROM Loan_Accounts
       WHERE Int_Rate IS NULL;

(c) **Amisha Dutta** a student of class **XII commerce** has created the following **Player** table
showing the batting records of Indian players in 'One Day International' cricket matches.
Write SQL commands for (i) to (iv) and give output for (v) and (vi) on the basis of the table
Player given below:

Table : PLAYER

PName	Matches	Innings	Notouts	Runs	Highest	Average	Hundreds	Fifties
MS Dhoni	280	243	66	8936	183	50.48	8	61
Virat Kohli	176	168	25	7570	183	52.93	26	38

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R Jadeja	126	87	NULL	1849	87	32.43	0	10
Rohit Sharma	153	147	23	5131	264	41.37	10	29
Sikhar Dhawan	74	73	3	3078	137	43.97	9	17
R Ashwin	102	58	NULL	658	65	16.45	0	1

    (i)   To show all the details of the players having scored hundreds and not played   1
matches less than 150.

   (ii) To display player's name, matches played, runs scored of those players who   1
have remained not out and scored more than 5000 runs.

 (iii) To list player's name, runs and average in descending order of their highest score. 1

 (iv) To count the number of players who have scored both hundreds and fifties.   1

  (v) SELECT PName, Innings, Notouts, Innings – Notouts "Total Outs" FROM Player   1
WHERE Runs BETWEEN 3078 AND 7570;

 (vi) SELECT PName, Runs, Average FROM Player   1
WHERE Fifties > (SELECT MAX(Hundreds) FROM Player);

6. (a) **Nandini Khedia** of **Chowk Bazaar, Purulia** is learning to create tables in MySQL. She   2
wants to create the table 'Population' with the following structure:

Column Name	Column Type	Column Size	Constraint
DISTRICT_CODE	Integer	2	PRIMARY KEY
DISTRICT_NAME	Varchar	20	NOT NULL
TOTAL_POPULATION	Integer	8	
MALE_PERCENT	Decimal	5,2	
FEMALE_PERCENT	Decimal	5,2	

  (b) Consider the tables Parent and Child given below: 2

Table : Parent

P_ID	P_NAME	P_AGE	P_SAL	P_ADDRESS
P012	Bindeswar Singh	45	38000.00	Belguma
P017	Asim Shrivastava	50	37450.00	Raghabpur More
P009	Manoj Thakur	50	42100.00	Locoshedpara
P014	Dipak Chakraborty	44	40275.00	Munsiffdanga

Table : Child

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P_ID	C_NAME	C_AGE	C_GENDER
P017	Jia	14	F
P012	Piyush	15	M
P014	Rai	11	F
P012	Prachi	08	F
P017	Aman	18	M

Based on the above tables answer the questions given below:

    (i) Identify the Primary Key and Foreign Key in the tables.

    (ii) 'P009' is not present in the column P_ID of table Child whereas 'P012' and 'P017' are present twice in the same column of table Child. Is there any discrepancy? Justify your answer.

(c) By observing the above given two tables (in Question No-6(b)), write SQL commands for questions (i) and (ii) and give output for SQL query (iii) given below:

    (i) To show parent's name, parent's salary, child's name, age of the child of those   2
parents whose child's age is in the range 10 to 15 (including both the values).

    (ii) To display parent's id, address, salary, child's name and child's gender of those   2
parents whose child's name contains the letter **'i'**.

    (iii) SELECT P_NAME, P_SAL, C_NAME FROM Parent, Child   2
WHERE Parent.P_ID = Child.P_ID AND C_AGE IN (12, 17, 15, 04, 18, 10);

7. (a) While doing any online business, what are the advantages that a customer can get?   2
Write down the name of one **URL/Domain name** which is frequently used for e-Business.

(b) **Muskan Sarawagi** is not aware of the important features of a good **Front-End/GUI**.   1
Write at least two points in order to make her understand.

(c) **Dhiraj Mundhra** is planning to develop a GUI billing application for his new restaurant   2
named **'GOKUL VATIKA'**. For this he needs to take some controls for designing the GUI
from Radio Button, Text Field, Command Button, List Box, Text Area, Password Field,
Check Box, Label and Combo Box for the entries given below. Suggest him the most
appropriate controls from the above list.

S. No.	Function to be performed	Control Name
1	To enter customer's name, bill amount	
2	To select the type of customer out of the followings : Regular, Privileged, Guest	
3	To select the food items consumed by the customer from a list of food items	

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4	To generate the bill	

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