CBSE Class – XII Informatics Practices

CBSE SAMPLE PAPER-02

1. (a) After realizing the issues with proprietary software, Ms. Sunita has decided to use only Open Source Software. Suggest any one suitable open source software to her, for each of the following categories: (1)

i. Operating System

ii. Browser

(b) Expand the following: (1)

i. ODF

ii. PPP

(c) What is Domain Name Resolution? (1)

(d) How a Phonetic text entry is different from Keymap based text entry? (1)

(e) Which of the following activity can be termed as Eavesdropping: (2)

i. If Jack sets up an unauthorized parallel telephone line to capture the data.

ii. If Jill has stolen his friend's keyboard.

iii. If Martina installs some receiver hardware to capture the data while on its way.

iv. If Kim gets someone's login information by casually watching what he/she is typing.

Select the best suitable option from the following:

i. Option i only

ii. Option ii only

iii. Option i and ii both

iv. Option i and iii both

How Eavesdropping is different from snooping by mentioning any one activity which will be termed as snooping?

(f) It's an era of networking! Almost everyone and everything is connected through one way or the other, hats off to the technology. We have never been so much linked as we are today. (4)

Daniel has just started his hands-on practice of networking. Help him in the following:

I. He has just connected 10 computers of his resource room to establish a network. Name the network (LAN/MAN/PAN/WAN) which will be formed. Mention any two main benefits which Daniel could achieve by establishing a network.

II. Help him in identifying the correct topology which has following characteristics:

- It's very easy to diagnose the fault in this topology.
- Failure of central hub/switch leads to failure of the entire network.

Depict the topology by drawing the diagram showing 4 interconnected computers through central hub/switch.

Ans. (a) i. Linux or Google Chrome OS or any other open source OS

(½ Mark for correct answer)

ii. Mozilla Firefox or Google Chrome or any other open source browser

(½ Mark for correct answer)

(b) i. Open Document Format

ii. Point to Point Protocol

(½ Mark for each correct answer)

(c) Domain Name Resolution is the process of getting corresponding IP address from a domain name.

(1 Mark for correct answer)

(d) Phonetic text entry is different from keymap based text entry as in the keymap based text

entry keyboard keys are mapped to specific characters using a keymap whereas in phonetic text entry text translation is done by some software based on probable pronunciation of the entered text.

(1 Mark for correct difference)

(e) iv. Option i and iii both

(1 Mark for correct answer)

Snooping refers to gaining unauthorized access to another person's or organization's data: For e.g. Reading the files on someone's computer in an unauthorized manner.

(1 Mark for correct answer)

(f) i. LAN

(1 Mark for correct answer)

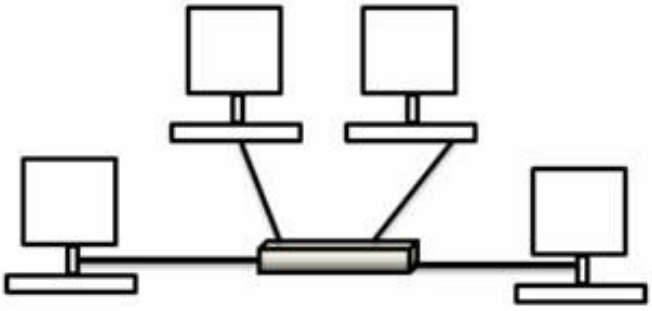
Benefits of Networking:

- Resource sharing
- Cost saving

(½ Mark for each correct benefit)

ii. Star Topology

(1 Mark for correct answer)



(1 Mark for correct diagram)

2. (a) Shalini is learning Java programming language, as it allows developers to write

code that can run on any machine, regardless of architecture or platform. Help her in finding solutions of her problems: (4)

I. She wants to compare two integer values for equality in her java code. Out of (=) and (= =), which operator she should use and why?

II. Help her in writing Java code to initialize two integer variables named num1 and num2 with values 5 and 10 respectively. Increase the value of num1 by 5 and decrease the value of num2 by 5.

(b) Mr. Sahil, a programmer in a VISA processing company, has written the following code (2)

```
int ch=Integer.parseInt(jTextField1.getText());

switch(ch)

{

case 1:

jTextField2.setText(“Short Term Single Entry Visa Granted”);

case 2:

jTextField2.setText(“Short Term Multiple Entry Visa Granted”);

case 3:

jTextField2.setText(“Long Term Single Entry Visa Granted”);

case 4:

jTextField2.setText(“Long Term Multiple Entry Visa Granted”);

default:

jTextField2.setText(“Invalid Entry”);

}
```

No matter what value is being entered in the text field jTextField1, this program always give a message “Invalid Entry”. Help Mr. Sahil in identifying the problem and its reason. Also, suggest him a suitable correction in the code.

(c) Realizing the importance of the Internet, Ms. Shikha a Mathematics teacher, has decided to use Internet as a medium to teach her students Mathematics in an interesting way. **(4)**

I. She wants to design a webpage as shown below to create a mathematics tutorial on the topic “Shapes” using HTML.

Mathematics in a fun way	
Shapes	Images
Circle	
Square	

She has written following HTML code for the same but she is not getting the desired output. Help her in identifying the error(s) and suggest the suitable corrections:

<html>

<head><title>Shapes</title></head>

<body>

<table>

<tr>

<table heading>Mathematics in a fun way</table heading>

</tr>

<tr>

<td>Shapes</td>

<td>Images</td>

</tr>

<tr>

<td>Circle</td>

<td><img source=“circle.jpg”></td>

</tr>

<tr>

<td>Square</td>

<td><img source= “square.jpg”></td>

</tr>

</table>

</body>

</html>

II. Help her in matching Column A with suitable statements of Column ‘B’

Column A	**Column B**
XML	We use predefined tags to design webpages.
It is designed to store and transport data	HTML

Tags are not case sensitive	XML
HTML	Elements must have a closing tag.

Ans. (a) I. = = operator

As = operator is assignment operator which will be used to assign the values to any variable/constant while = = is comparison operator for equality.

(1 Mark for correct answer)

(1 Mark for correct explanation)

II. int num1=5, num2=10;

num1=num1+5;

num2=num2-5;

(½ Mark for each correct statement)

(b) In absence of break 'fall through' condition occurs. As a result, control, will not be able to come out of the switch block after first matching. So, all the messages will be overwritten by the last message i.e. "Invalid Entry" due to set Text () method.

He should use break statement in each case.

(1 Mark for correct identification of the problem and reason)

(1 Mark for correct correction)

(c) <html>

<head><title>Shapes</title></head>

<body>

<table border=1> //Correction 1

<tr>

<th colspan=2>Mathematics in a fun way</th> //Correction 2 & 3

</tr>

<tr>

<td>Shapes</td>

<td>Images</td>

</tr>

<tr>

<td>Circle</td>

<td><img src= “circle.jpg”></td> //Correction 4

</tr>

<tr>

<td>Square</td><td><img src= “square.jpg”></td> //Correction 4

</tr>

</table>

/body>

</html>

(½ Mark for each correct correction)

II.

Column A	**Column B**
XML	Elements must have a closing tag.
It is designed to store and transport data	XML
	HTML

Tags are not case sensitive	
HTML	We use predefined tags to design webpages.

(½ Mark for each correct matching)

3. (a) In today's digitized world with a need to store data electronically, it is very important to store the data in the databases. SQL is used to interact with the Database Management System. (4)

I. Classify the following commands according to their type :(DDL/DML)

i. INSERT INTO

ii. ALTER TABLE

II. Which clause would you use with Select to achieve the following:

i. To select the values that match with any value in a list of specified values.

ii. Used to display unrepeated values of a column from a table.

III. Chhavi has created a table named Orders, she has been asked to increase the value of a column named sales amount by 20. She has written the following query for the same.

Alter table Orders Add sales amount =salesamount+20;

Is it the correct query? Justify.

(b) I. Name any one Single row function and any one Aggregate function. Also, mention the difference in their working. (4)

II. Explain why the following queries give different outputs on execution:

i. SELECT COUNT(ENAME) FROM EMP; Output: 5

ii. SELECT Count (*) FROM EMP; Output: 8

(c) Geetanjali had created a table "Customer" in the database "Test". Immediately after the successful creation of the database, she wrote the Rollback command to undo the creation of the table. Did she execute rollback successfully? Explain. (2)

Ans: **(a)** I. i. INSERT INTO: DML command

ii. ALTER TABLE: DDL command

(½ Mark for each correct answer)

II. a. IN

b. Distinct

(½ Mark for each correct answer)

III. No, alter command is used to make changes to the structure of the table, but Chhavi has to make changes in the data stored in the table. Hence, she should write the following query:

Update Orders set sales amount =salesamount+20;

(1 Mark for the justification)

(1 Mark for the correct query)

(b) I. Single row function: Length () (any single row function)

Aggregate Function: Max () (any other aggregate function)

A single row functions works on every row of the table and hence gives output for each row in the table.

An Aggregate function also known as Multiple row function works on a group of rows and returns only 1 output.

(1 Mark for the writing any 1 valid Single row and Aggregate function)

(1 Mark for writing the difference in their working)

II. Aggregate functions ignore NULL values. The first query counts the Not Null values in the column ENAME hence the output is 5.

But the second query counts all the records present in the table EMP which gives the output as 8.

Hence this implies that there are 8 rows in the table and the Ename column contains the name of only 5 employees. 8-5 = 3, i.e. 3 names have been left blank.

This means that there are 3 null values in the column ENAME.

(1 Mark for giving individual explanation of the queries)

(2 Marks for giving individual explanation of the queries along with the reason for difference in the output)

(½ Mark for identifying the error)

(c) A table in MYSQL is created using CREATE TABLE command which is a DDL command. A DDL command cannot be rolled back hence she needs to use the DROP TABLE command to remove the table.

(2 Marks for the correct answer)

(½ mark only for the identification of CREATE TABLE as a DDL command)

(½ Mark only for suggesting the use of DROP TABLE command)

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4. (a) Ms. Meena is not able to understand the statement "Java is a case sensitive language". Help her in understanding the above-mentioned statement by giving suitable example. (1)

(b) Ms. Rachel is designing a frame in NetBeans in which she has used four Radio Button controls. She wants that only one radio button out of four should be selected at a time. Which property of the Radio Button should be selected to achieve the same? (1)

(c) What will be displayed in jTextArea1 after the following code is executed: (1)

```
int i;

for(i=10;i<50; i=i+30)
```

```
{
i=i+15;
jTextArea1.append(""+i);
}
jTextArea1.append("\n"+i);
```

(d) Do as directed: (4)

I. Find the output of the following Java code snippet after execution of each java statement labelled as Stmt 1, Stmt 2, Stmt 3, Stmt 4:

```
String str1="VASUDHAIVA",str2="KUTUMBAKAM";
jTextArea1.append((str1.substring(0,4))); //Stmt 1
jTextArea1.append((str2.substring(4))); //Stmt 2
jTextArea1.setText(jTextArea1.getText()+jTextArea1.getText(). length ()) ;//Stmt 3
jOptionPane1.showMessageDialog(null, jTextArea1.getText(). length ()); //Stmt 4
```

II. Rewrite the following code using do while loop:

```
int num=Integer.parseInt(jTextField1.getText());
while(num<=40)
{
jOptionPane1.showMessageDialog(null, num);
num=num*20;
}
jOptionPane1.showMessageDialog(null, “Bye Bye");
```

(e) The following code has error(s). Rewrite the correct code underlining all

the corrections made: (2)

value1=1, value2=2;

while(value1<value2)

jTextArea1.append ("\n"+value1*value2;

value1++

(f) Mr. Ashish works as a programmer in "Universal Technologies Pvt. Ltd.". He has designed a Library software to generate the member ship fee depending upon the membership type considering discount eligibility as well. A screenshot of the same is shown below: (6)

Help him in writing the code to do the following:

i. After selecting appropriate Radio Button, when ‘Check Fee’ button is clicked, fee should be displayed in the respective text field according to the following criteria:

Membership Type	Fee
Monthly	500
Quarterly	1000
Yearly	1500

ii. After selecting appropriate Radio Button, when ‘Check Discount’ button is clicked, appropriate discount should be displayed in the respective text field according to the following criteria:

Discount Eligibility	Discount
Students	200
Other	100

iii. When ‘Calculate’ button is clicked, Net Fee should be calculated and displayed in the respective text field as per the given formula:

Net Fee = Fee – Discount

iv. When ‘Clear All’ button is clicked, All the text fields should be cleared.

Ans. (a) Java is a case sensitive language as java distinguish between uppercase and lowercase very strictly. For example:

int num1, Num1;

Although both variable have same name in the above statement but java will treat them two different variables due to first character in different case.

(1 Mark for correct answer)

(b). button Group

(1 Mark for correct answer)

(c). 25

55

(½ Mark for each correct output)

(d) I. VASU

VASUMBAKAM

VASUMBAKAM10

12

(½ Mark for each correct output)

II. int num=Integer.parseInt(jTextField1.getText());

do

{

jOptionPane1.showMessageDialog(null, num);

num=num*20;

} while(num<=40);

jOptionPane1.showMessageDialog(null,"Bye Bye");

(2 Mark for correct code in do while)

(e) int value1=1, value2=2; //Correction 1

while(value1<value2)

{jTextArea1.append ("\n"+value1*value2); //Correction 2 & 3

value1++; //Correction 4

}

(½ Mark for each correct correction)

(f) i. Code for ‘Check Fee’ button:

```
if (jRadioButton1.isSelected())
    jTextField3.setText("500");
else if (jRadioButton2.isSelected())
    jTextField3.setText("1000");
else if (jRadioButton3.isSelected())
    jTextField3.setText("1500");
```

(2 Mark for correct code)

ii. Code for ‘Check Discount’ button

```
if (jRadioButton4.isSelected())
jTextField4.setText("200");
else if (jRadioButton5.isSelected())
jTextField4.setText("100");
```

(2 Mark for correct code)

iii. Code for ‘Calculate’ button

```
int fee=Integer.parseInt(jTextField3.getText());
int disc=Integer.parseInt(jTextField4.getText());
int net=fee-disc;
jTextField5.setText(""+net);
```

(1 Mark for correct code)

iv. Code for ‘Clear All’ button

jTextField1.setText("");

jTextField2.setText("");

jTextField3.setText("");

jTextField4.setText("");

jTextField5.setText("");

(1 Mark for correct code)

5. (a) Write the output of the following SQL queries: (1)

SELECT POW (INSTR ('My Database','_'),2);

(b) Is NULL and 0(zero) same? Justify your answer. (1)

(c) Observe the given table carefully and answer the following questions: (2)

Pa**n No**	**Name**	**Phone no**	**Address**
CIZPW123A	Rajesh Kumar	9599123456	WZ11 – Rajouri Garden, Delhi
ABWQ2341B	Hemant Kumar	9812345678	Modern Apartments, Pitampura, Delhi
DERA9786T	Naveen Sharma	7868654235	CA 22, Sector 21 Rohini, Delhi
PARD3457L	Sourabh Verma	8933217645	JD 61, Sector20, Gurgaon
GDTF8762P	Nishant Kumar	NULL	NULL Modern Apartments, Pitampura, Delhi
MERT2376G	Hemant Kumar	9811110891	F40, Sector 19, Rohini, Delhi

i. Name the column that might have a Primary Key constraint. Justify your answer.

ii. Name the column that might have a Unique constraint. Justify your answer.

(d) Consider the following table: (4)

Table: Pharma DB

RxID	Drug ID	Drug Name	Price	Pharmacy Name	Pharmacy Location
R1000	5476	Amlodipine	100.00	Rx Pharmacy	Pitampura, Delhi
R1001	2345	Paracetamol	15.00	Raj Medicos	Bahadurgarh, Haryana
R1002	1236	Nebistar	60.00	MyChemist	MyChemist Rajouri Garden, Delhi
R1003	6512	VitaPlus	150.00	MyChemist	Gurgaon, Haryana
R1004	5631	Levocetirizine	110.00	RxPharmacy	South Extension, Delhi

Write commands in SQL for (i) to (iv):

i. To increase the price of “Amlodipine” by 50.

ii. To display all those medicines whose price is in the range 100 to 150.

iii. To display the Maximum price offered by pharmacy located in “Gurgaon”

iv. To display the Drug ID, Drug Name and Pharmacy Name of all the records in descending order of their price.

(e) On the basis of the Table Pharma, write the output(s) produced by executing the following queries: (2)

i. SELECT RxID, DrugName, Price from PharmaDB where PharmacyName IN (“Rx Parmacy”, “Raj Medicos”);

ii. SELECT PharmacyName, COUNT(*) FROM PharmaDB GROUP BY PHARMACY NAME

Ans: (a) Output: 9

(1 mark for the correct output)

(b) No, it’s not the same as null means a value that is unavailable, unassigned or unknown and zero is a defined value.

(1 mark for the correct answer)

(c) 1. PanNo must be a Primary Key as it contains unique and NOT NULL values.

2. Phone no must have a Unique constraint as it contains non-repeating values and a Unique constraint allows NULL values.

(1 Mark each for correct identification of the column and the correct reason.)

(1 Mark for the correct identification of the columns)

(d) i. Update PharmaDB set price = price+50 where DrugName = “Amlodipine”;

(½ Mark for correct usage of update)

(½ Mark for correct condition)

ii. Select * from PharmaDB where price between 100 and 150;

(½ Mark for correct use of Select)

(½ Mark for correct condition)

iii. Select Max(Price) from PharmaDB where Pharmacy Location like” % Gurgaon%”;

(½ Mark for correct Select statement)

(½ Mark for correct condition)

iv. Select Drug ID, DrugName, PharmacyName from PharmaDB order by Price desc;

(½ Mark for correct use of Select)

(½ Mark for order by)

(e) i.

RxID	DrugName	Price
R1000	Amlodipine	100.00
R1001	Paracetamol	15.00
R1004	Levocetirizine	110.00

(1 mark for the correct output)

ii. Pharmacy Name | COUNT (*)

Rx Pharmacy | 2

Raj Medicos | 1

My Chemist | 2

(1 mark for the correct output)

6. (a) Write SQL query to create a table "Job" with the following structure: (2)

Table: Job

Field name	Datatype	Size	Constraint
J_Code	Integer	3	Primary Key
J_Description	Varchar	25	Not Null
J_Chg_Hr	Integer		
J_Lastupdate	Date		

(b) Consider the tables given below which are linked with each other and maintains referential integrity: (6)

Table: SAP

SAPID	Item Code	ItemName	Item Storage Location
6S1001	1001	Receiver	W12-B3-R24
S1002	1002	Transponder	W13-B7-R87
S1003	1003	Battery Bank	W21-B1-R87
S1004	1004	Inverter	W21-B11-R2

S1005	1005	Genset	W22-B15-R16

Table: Store

Store	Item Code	StoreLocation	ReceivedDate
1201	1001	Hauz Khas	2016/05/20
1202	1002	Rajouri Garden	2016/06/14
1203	1003	Rohini	2016/05/06
1204	1004	Hauz Khaas	2016/07/15
1205	1005	Rajendra Place	2016/05/27

With reference to the above given tables, write commands in SQL for (i) and (ii) and output for (iii) below:

i. To display the ItemCode, ItemName and Received Date of all the items

ii. To display SAPID, ItemName, ItemStorageLocation of all the items whose Received date is after 2nd May 2016.

iii. SELECT sa.SAPID, ItemName, STOREID FROM SAP sa,Store st WHERE sa.ItemCode=st.ItemCode AND StoreLocation = “Haus Khas”

(c) What will be the degree and cardinality of the Cartesian product formed while combining both the above given tables ‘SAP’ and ‘Store’? (1)

(d) Sangeeta is not able to add a new record in the table ‘Store’ through the following query: (1)

Insert into store values (1206, 1006, ’Karol Bagh’, ‘2016/07/25’);

Identify the error if there is any.

Ans. (a) Create table Job

(J_Code Integer (3) Primary Key,

J_Description Varchar (25) Not Null,

J_Chg_Hr Integer,

J_Lastupdate Date);

(½ Mark for create table statement)

(½ Mark for all the fieldnames with datatypes)

(½ Mark for correct placement of Primary key constraint)

(½ Mark for correct placement of Not null constraint)

(b) **i.** Select SAP.ItemCode,ItemName , Received Date From SAP sa,Store st Where sa.ItemCode=st.ItemCode

(½ Mark for correct usage of Select)

(½ Mark for correct From statement)

(1 Mark for the correct condition)

ii. Select sa. SAPID, ItemName,ItemStorageLocation

From SAP sa,Store st

Where sa. ItemCode=st.ItemCode and Receiveddate >”2016/05/02”;

(½ Mark for correct usage of Select)

(½ Mark for correct from statement)

(½ Mark for the correct join condition)

(½ Mark for the correct condition on Receiveddate)

iii.

SAPID	**ItemName**	**StoreID**
S1001	Receiver	1201

S1004	Inverter	1204

(1 Mark for each row)

(c) Degree: 8

Cardinality: 25

(½ mark for each correct answer)

(d) As referential integrity is being maintained in between both the tables, Item Code 1006 cannot be inserted in the table store as there is no corresponding matching entry in the table SAP.

(1 Mark for correct error finding)

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7. (a) Observe the given domains carefully and identify the category it belongs out of eGovernance/e-Business/e-Learning: (1)

i. AMAZON: www.amazon.in

ii. PMO (Prime Minister's office):

(b) Mention any one social and economic benefit of ICT. (2)

(c) Ms. Rachna, works as a programmer in 'Plan My Trip' travel company. She wishes to design a Flight booking page. Help her in choosing appropriate controls for the specified task from Text field, Label, Radio button, Check box, List box, Combo box, Button and write in the third column. (2)

S. No.	Control used to	Control
1	Traveler's Name	
2	Source City/Destination City	
3	Trip Type (One Way Trip / Round Trip / Multi City or Stop Over)	
4	Booking Class (Economy/Premium Economy/Business)	

Ans.(a) i. e- Business

ii. e-Governance

(½ Mark each for correct answer)

(b) Social Benefit:

i. Social networking sites help people to stay in touch with their near and dear ones.

Economic Benefit:

i. It helps economy grow at faster rate as it provides transparency in the process and increases accountability.

(1 Mark each for correct Social and Economic Benefit)

(c)

S. No.	Control used to	Control
1	Traveler's Name	Text Field
2	Source City/Destination City	Combo box
3	Trip Type (One Way Trip / Round Trip / Multi City or Stop Over)	Radio button
4	Booking Class (Economy/ Premium Economy/ Business)	Combo box/ Radio button

(1/2 mark for each correct answer)