
CBSE Question Paper 2018
Class 12 Informatics Practices

Time allowed : 3 hours

Maximum Marks : 70

Instructions :

1. All questions are compulsory.
 2. Answer the questions after carefully reading the text.
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1. a. **ABC Company wants to link its computers in Head office in New Delhi to its office in Sydney. Name the type of Network that will be formed. Which communication media should be used to form this Network? (2)**

Ans. Type of network that will be formed : Wide Area Network(WAN) Transmission media to be used : Satellite

- b. **Which of the following is/are not communication media ? (2)**

- a. **Microwaves**
- b. **Optical Fiber cable**
- c. **Node**
- d. **Radio waves**

Identify which of the above mentioned communication media are Wired media and which ones are Wireless media.

Ans. Not communication media : Node

Wired media : Optical Fiber cable

Wireless media : Microwaves , Radio waves

- c. **Write two examples each of software in the following categories: (2)**

- i. **Open Source Operating System**
- ii. **Open Source Web Browser**

Ans.

- i. Linux, Android, FreeBSD, OpenBSD, NetBSD, DragonFly BSD, OpenSolaris, illumos, AuroraUX, Darwin, OpenDarwin, MINIX, FreeRTOS, FreeDOS, Haiku, House KolibriOS, MenuetOS, GNU, ReactOS, L4, Fiasco, Pistachio, Plan 9, AROS, Syllable,

Inferno, NuttX, eCos, RTEMS, HelenOS, E/OS, TempleOS, Linux, BOSS, Ubuntu, Kali Linux

- ii. Mozilla Firefox, Google Chrome, Opera, QupZilla, Midori, rekonq, Tor Browser, NetSurf, Pale Moon, GNOME Web

d. **Expand the following terms : (2)**

- i. **GSM**
- ii. **IP**

Ans.

- i. GSM - Global System for Mobile Communications/ Global System for Mobile/ Graphics Stimulator Media
- ii. IP - Internet Protocol

e. **Name the devices: (2)**

- i. **This device constantly looks at all the data entering and exiting your connection. It can block or reject data in response to an established rule.**
- ii. **This device connects multiple nodes to form a network. It redirects the received information only to the intended node(s).**

Ans.

- i. Firewall
- ii. Switch

2. a. **Identify the invalid variable names. State the reason if invalid. (1)**

- i. **Marks Unit**
- ii. **Product_1**
- iii. **Sales123**
- iv. **2Marks**

Ans. Invalid variable names are :

- i. Marks Unit
Reason : Variable Name should not contain space
- ii. 2Marks
Reason : Variable Name should not start with digit

b. **Write the data type of variables that should be used to store: (1)**

- i. **Marks of students**
- ii. **Grades of students(Grade can be 'A' or 'B' or 'C')**

Ans.

i. float/ double /int / byte / short / long

ii. char

- c. **Write examples of any two properties and any two methods of JButton component (2)**

Ans. Properties of JButton component :

Background, font, label, text, name, editable, enabled, horizontalalignment, border

Methods of JButton component :

setText(), getText(), setEnabled(), setVisible(), setEditable(), isVisible(), isSelected(), setSelected()

- d. **Write the purpose of HTML. Distinguish between <P> and
 tag. (2)**

Ans. HTML is used to create web page(s).

<P> tag is used to introduce a paragraph while
 tag is used to introduce a line break on a web page.

Note: <P> as paragraph tag and
 as line break tag to be accepted as difference

- e. **Distinguish between ComboBox and ListBox. When would you prefer using them over Radiobutton and Checkbox? (2)**

Ans. A ComboBox allows selection of one item from a set of items.

while ListBox provides a scrollable set of items from which one or more item(s) may be selected.

When the number of items are more Combobox or ListBox would be preferred over Radiobutton and Checkbox.

- f. **Rewrite the following code using switch statement: (2) if**

(code == 'A')

allowance = 3500;

else if (code == 'B')

allowance = 3200 ;

else

allowance = 2000 ;

Ans. switch(code)

{

case 'A' : allowance = 3500;

break ;

case 'B' : allowance = 3200;

```

break ;
default : allowance = 2000;
}

```

3. a. **What is MySQL used for? Abhay wants to start learning MySQL. From where can he obtain the MySQL software ? (1)**

Ans.

- i. MySQL is an open source RDBMS used for managing databases.
- ii. For obtaining MySQL, Abhay has the following options :
 - download from the website mysql.org
 - download it from any website that offers MySQL.
 - get the software from any source

b. **In the table “Student”, Priya wanted to increase the Marks(Column Name:Marks) of those students by 5 who have got Marks below 33. She has entered the following statement: (1)**

SELECT Marks+5 FROM Student WHERE Marks<33;

Identify errors (ifany) in the above statement. Rewrite the correct SQL statement.

Ans. Error : **UPDATE** should be used instead of **SELECT**

Correct SQL statement:

UPDATE Student SET Marks= Marks+5

WHERE Marks<33;

c. i. **Name the Data type that should be used to store AccountCodes like “A1001” of Customers.**

ii. **Name two Data types that require data to be enclosed in quotes. (2)**

Ans.

i. char/ varchar

ii. char/ varchar/ date

d. **Given the table ‘Player’ with the following columns : (2)**

Table : Player

PCODE	POINTS
1	50
2	NULL

Write the output of the following statements:

- i. **SELECT AVG(POINTS)
FROM Player;**
- ii. **Select COUNT(POINTS) FROM Player;**

Ans.

- i. **AVG (POINTS)**
 - ii. **COUNT^{4b} (POINTS)**
- e. **'Class' table has columns RNO and NAME .**

The following statements are executed:

```
SET AUTOCOMMIT = 0;
INSERT INTO CLASS VALUES (5,'Rajiv');
COMMIT;
UPDATE CLASS SET NAME = 'Rajeev' WHERE ID = 5;
SAVEPOINT A;
INSERT INTO CLASS VALUES (6,'Chris');
SAVEPOINT B;
INSERT INTO CLASS VALUES (7,'Feroze');
SELECT * FROM CLASS;
ROLLBACK TO B;
SELECT * FROM CLASS;
```

What will be the output of both the above given SELECT statements ? (2) Ans.

(Case 1 :If RNO is treated as ID, the following solution should be accepted:) Output of SELECT statement 1 :

RNO	NAME
5	Rajeev
6	Chris
7	Feroze

Output of SELECT statement 2 :

RNO	NAME
5	Rajeev

6	Chris
---	-------

(Case 2 : If RNO is NOT treated as ID, the following should be accepted:)

Output of SELECT statement 1 :

RNO	NAME
5	Rajeev
6	Chris
7	Feroze

Output of SELECT statement 2 :

RNO	NAME
5	Rajeev
6	Chris

Case 1 and 2 : (2 mark for output of any one of the SELECT statement)

- f. **Name SQL Single Row functions (for each of the following) that (2)**
- returns a number.
 - returns lowercase letters.
 - returns names of days. For example: "Monday ", "Tuesday".
 - returns weekday number. For example : 1 for Sunday , 2 for Monday , 3 for Tuesday.

Ans.

- length()/ instr()/ round()/ truncate() or any other correct Single Row Function that returns a number
- lower() / lcase()
- dayname()
- dayofweek()

4. a. **Identify the error in the following code: (1)**

```
switch(c)
{
case 9.0 : a=
a+2; break;
case 8.0 :
a=a+3; break;
```

}

Ans. Variable 'c' cannot be of float/real data type.

- b. **What will be displayed in JOptionPane when the following code is executed? (2) int**

a=5, b = 2;

while (a < 20)

{

a = a + b;

b = a - b;

JOptionPane.showMessageDialog(null,a);

}

Ans. 7

12

19

31

OR

7 12 19 31

- c. **Write the code given below using 'for' loop instead of 'while' loop: (2) int**

i=1;

while(i<=5)

{

if(i * i == 4)

jTextField1.setText(""+i);

i=i+1;

}

Ans. int i;

for(i = 1; i <= 5; i++)

{

if(i * i == 4)

jTextField1.setText(""+i);

}

- d. **Write the value that will be stored in variable a after execution of the following code**

if: (2)

-
- i. initial value of a is 8.
 - ii. initial value of a is 10.

```
int b = 9;  
if (a > b)  
a=a+5;  
a=a+2;
```

Ans.

- i. 10
- ii. 17

- e. What will be the values of i and z after the following code is executed: (2) int i =

```
0;  
int z = 10;  
do  
{  
i=i+2;  
z--;  
}  
while (i<10);
```

Ans. i= 10

z = 5

- f. Ms. Priya works as a programmer in “Avon Education” where she has designed a software to compute fee charges to be paid by the students. A screenshot of the same is shown below:

- Name of the student is entered by the user.
- Any one Course out of Pharmacy, Architecture and Arts & Design is chosen by the user.
- If the student is eligible for Concession, the required checkbox is selected by the user.
- Based on the course selected, Fee Per Quarter is displayed in the appropriate textfield according to the following criterion:

Course	Fee Per Quarter
Pharmacy	2000.0
Architecture	2500.0
Arts & Design	2300.0

-
- If the student is eligible for Concession, a concession of 7% of Fee per quarter is calculated as the concession amount, otherwise concession amount is 0.
 - Fee to be paid is the Fee per quarter with the concession amount (if any) deducted from it.

Help Ms. Priya in writing the code to do the following:

- i. **When 'Calculate Charges' button is clicked, 'Fee per quarter', 'Concession Amount', 'Fee to be Paid' should be calculated and displayed in the respective text fields. (4)**

Ans. // Calculation of Amount

```
i. double feeperqtr = 0.0,concess = 0.0,feetopay=0.0;
    if (jRadioButton1.isSelected()) feeperqtr=2000;

    else if (jRadioButton2.isSelected())
feeperqtr=2500;
    else if (jRadioButton3.isSelected())
feeperqtr=2300;
    if (jCheckBox1.isSelected())
concess= (0.07*feeperqtr);
feetopay=feeperqtr-concess;
jTextField2.setText("" + feeperqtr);
jTextField3.setText("" + concess);
jTextField4.setText("" + feetopay);
```

- ii. **When ' CLEAR 'button is clicked, all the textfields, radiobuttons and checkbox should be cleared. (1)**

Ans. jTextField1.setText("");
jTextField2.setText("");
jTextField3.setText("");
jTextField4.setText("");
jRadioButton1.setSelected(false);
jRadioButton2.setSelected(false);
jRadioButton3.setSelected(false);
jCheckBox1.setSelected(false);

iii. When 'Exit' button is clicked, the application should close. (1)

Ans. System.exit(0);

5. Consider the following table 'Furniture'. Write SQL commands for the statements (i) to (viii) and write output for SQL queries (ix) and (x).

Table : Furniture

FCODE	NAME	PRCIE	MANUFDATE	WCODE
10023	Coffee table	4000	19-DEC-2016	W03
10001	Dining table	20500	12-JAN-2017	W01
10012	Sofa	35000	06-JUN-2016	W02
10024	Chair	2500	07-APR-2017	W03
10090	Cabinet	18000	31-MAR-2015	W02

i. To display FCODE ,NAME and PRICE of items that have PRICE less than \square 5,000.

(1)

Ans. SELECT FCODE, NAME,PRICE FROM Furniture
WHERE PRICE <5000;

ii. To display NAMES and PRICE of those Furniture Items that have 'table' anywhere in their names. (1)

Ans. SELECT NAME,PRICE FROM Furniture
WHERE NAME LIKE '%table%';

iii. To display WCODE of Furniture Items. There should be no duplicate values. (1) Ans.
SELECT DISTINCT(WCODE) FROM Furniture;

iv. To display the NAMES and PRICE increased by 500.00 of all the furniture items. (Price should only be displayed as increased; there should be no increase in the data in the table) (1)

Ans. SELECT NAME, PRICE+500 FROM Furniture;

v. To display FCODE and NAME of each Furniture Item in descending order of FCODE. (1)

Ans. SELECT FCODE, NAME FROM Furniture
ORDER BY FCODE DESC;

vi. To display the details of all the Furniture Items which have Manufacturing date(MANUFDATE) between 01-JAN-2016 and 15-JUN-2017 (inclusive of both the dates).

(1)

Ans. SELECT * FROM FURNITURE WHERE MANUFDATE BETWEEN '2016-01-01'
AND '2017-06-15';

OR

SELECT * FROM FURNITURE WHERE MANUFDATE >= '2016-01-01' AND
MANUFDATE <= '2017-06-15';

OR

SELECT * FROM FURNITURE WHERE MANUFDATE BETWEEN '01-JAN-2016' AND
'15-JUN-2017';

OR

SELECT * FROM FURNITURE WHERE MANUFDATE >= '01-JAN-2016' AND
MANUFDATE <='15-JUN-2017';

- vii. **To display the average PRICE of all the Furniture Items, which are made of Wood with WCODE as W02.(1)**

Ans. SELECT AVG(PRICE) FROM Furniture
WHERE WCODE = 'W02';

- viii. **To display WCODE wise, WCODE and the highest price of Furniture Items. (1)**

Ans. SELECT WCODE, MAX(PRICE) FROM Furniture
GROUP BY WCODE;

- ix. **SELECT SUM(PRICE) FROM Furniture WHERE WCODE='W03'; (1)**

Ans. $\frac{\text{SUM}(\text{PRICE})}{6500}$

- x. **SELECT COUNT(DISTINCT PRICE) FROM Furniture; (1)**

Ans. $\frac{\text{COUNT}(\text{DISTINCT PRICE})}{5}$

6. a. **Write SQL query to create a table 'Inventory' with the following structure: (2)**

Field	Type	Constraint
MaterialId	Integer	Primary Key
Material	Varchar(50)	NOT NULL
Category	Char	

DatePurchase	Date	
--------------	------	--

Ans. CREATE TABLE Inventory

```
(
MaterialId INTEGER PRIMARY KEY,
Material Varchar(50)NOT NULL,
Category Char,
DatePurchase Date
);
```

- b. Consider the following tables PATIENT and TEST and answer the questions that follow: (2)

Table: PATIENT

FCODE	NAME	PHONE	MANUFDATE	TESTED
6473	Amit Sharma	912356899	19-JUN-2017	T102
7143	Rose Mathew	886744536	12-NOV-2017	T101
8786	Tina Sharma Arora	889088765	06-DEC-2017	T102
6477	Vijay	714567445	07-DEC-2017	T502
7658	Venkat Fazal	865545343	31-DEC-2017	T101

Note : NAME holds the Names of patients.

DTADMIT holds Dates on which patient was admitted to hospital.

TESTID holds Ids of Medical tests done on patients. **Table: TEST**

TESTED	TESTNAME	COST
T101	Platelet Count	200.00
T102	Hemogram	190.00
T301	Malaria Detection	135.00
T502	Glucose Test	150.00

Name the Primary keys in both the tables and foreign key in ' PATIENT 'table.

State the reason for your choice.

Ans. Primary key (Table : PATIENT) - PCODE as it is unique to each row of table

Primary key (Table : TEST) – TESTID as it is unique to each row of table

Foreign key in table PATIENT : TESTID as it links the two tables and is Primary key in table TEST .

c. **With reference to the above given tables (in Q6 b), Write commands in SQL for (i) to (iii)**

i. **To display Names of Patients, TESTID and Test names for those Patients who were admitted between ‘01-DEC-2017’ and ‘15-DEC-2017’ (both dates inclusive).**

(2)

Ans. SELECT NAME, PATIENT.TESTID, TESTNAME /*TEST.TESTID accepted*/
FROM PATIENT, TEST
WHERE PATIENT.TESTID = TEST.TESTID
AND DTADMIT BETWEEN '01-DEC-2017' and '15-DEC-2017';

OR

SELECT NAME, PATIENT.TESTID, TESTNAME /*TEST.TESTID accepted*/
FROM PATIENT, TEST
WHERE PATIENT.TESTID = TEST.TESTID
AND DTADMIT >='01-DEC-2017'and DTADMIT <= '15-DEC-2017';

OR

SELECT NAME, P.TESTID, TESTNAME /*T.TESTID accepted*/
FROM PATIENT P, TEST T
WHERE P.TESTID = T.TESTID
AND DTADMIT BETWEEN '01-DEC-2017' and '15-DEC-2017';

OR

SELECT NAME, P.TESTID, TESTNAME /*T.TESTID accepted*/
FROM PATIENT P, TEST T
WHERE P.TESTID = T.TESTID
AND DTADMIT >= '01-DEC-2017' and DTADMIT <= '15-DEC-2017';

ii. **To display Names of Patients, Test names and Cost of Test for those Patients who have “Sharma” in their names. (2)**

Ans. SELECT NAME,TESTNAME,COST
FROM PATIENT, TEST
WHERE PATIENT.TESTID = TEST.TESTID
AND Name LIKE '%Sharma%';

OR

SELECT NAME,TESTNAME,COST
FROM PATIENT P, TEST T
WHERE P.TESTID = T.TESTID
AND Name LIKE '%Sharma%';

OR

SELECT P.NAME,T.TESTNAME,T.COST
FROM PATIENT P, TEST T
WHERE P.TESTID = T.TESTID
AND Name LIKE '%Sharma%';

- iii. **To increase the cost of those tests in the table “ TEST ” by ₹ 50.00 that have cost below ₹ 200.00 (2)**

Ans. UPDATE TEST SET
COST = COST+50.00
WHERE COST <200.00;

7. a. **How does e-governance help in building trust between the Government and citizens? (2)**

Ans.

- Transparency of Government processes, policies and decisions
- Awareness about new policies and facilities being offered by the Government.
- Enabling citizen engagement in the policy processes Reduces the waiting time
-
- Practices like influences and bribing are reduced

- b. **How can e-learning help students learn at their own pace? (1)**

Ans.

- Students can go through the learning material any number of times as per

his/her learning abilities

- Students can study at their own convenient time anywhere/anytime.

c. **Ms. Cathy is creating a form for Vidya University Sports Council application. Help her to choose the most appropriate controls from ListBox, ComboBox, TextField, TextArea, RadioButton, CheckBox, Label and Command Button for the following entries: (2)**

S.No.	Function
1.	To let the user enter NAME
2.	To let the user enter MOBLIE NUMBER
3.	To let the user choose one PROFESSION out of the categories: Teaching/Non-Teaching/Research Scholar
4.	To let the user select facilities out of Gym, Yoga, Table Tennis, Badminton and Aerobics. More than one facility may be chosen.

Ans.

S.No.	Function	
1.	To let the user enter NAME	TextField
2.	To let the user enter MOBLIE NUMBER	TextField
3.	To let the user choose one PROFESSION out of the categories: Teaching/ Non-Teaching/ Research Scholar	RadioButton/Combobox
4.	To let the user select facilities out of Gym, Yoga, Table Tennis, Badminton and Aerobics. More than one facility may be chosen.	Checkbox/Listbox