Sample Paper ICSE Class 10 Computer Applications
Unsolved

Section A
(All questions compulsory)

Question 1. Multiple Choice Questions.

(i)
Consider the following code snippet

```
if (c > d)
   x = c;
else
   x = d;
```

Choose the correct option if the code mentioned above is rewritten using the ternary operator.

1. x = (c > d) ? c : d;
2. x = (c > d) ? d : c;
3. x = (c > d) ? c : c;
4. x = (c > d) ? d : d;

(ii)
Which clause is optional in the switch statement?

1. default
2. case
3. switch
4. None of these

(iii)
Errors occur in a program when :

1. Syntax of the programming language is not followed
2. the program does not run properly or does not execute at all
3. The program produces an incorrect result
4. All of the above

(iv)
Objects that share the same attributes and behaviour are grouped into a/an

1. interface
2. instance
3. alias
4. class

(v)
The statement (1 > 0) || (1 < 0) evaluates to

1. 0
2. 1
3. false
4. true

(vi)
The parameters that are passed to the method when it is invoked are called

1. formal parameters
2. actual parameters
3. informal parameters
4. void parameters

(vii)
Give the output of Math.sqrt(x); when x = 9.0.

1. 3
2. 3.0
3. 3.00
4. All of these

(viii)
What will be the output of the following code?

```
String a[] = {"MI", "Samsung", "Micromax", "One Plus"};
System.out.println(a[3].length());
```

1. 8
2. 7
3. 5
4. 9

(ix)
Polymorphism is broadly used in implementing .....

1. inheritance
2. encapsulation
3. abstraction
4. literals

(x)
Give the output of the following

```
switch (x)
{
case 'M' :
   System.out.print ("Microsoft Teams");
   break;
case 'G':
   System.out.print ("Google Meet");
default:
   System.out.print("Any Software");
   break;
case 'W':
   System.out.print("Web Ex");
   break;
}
```

when x = 'g'

1. Google Meet
2. Any Software

3. Google Meet
   Any Software
4. Web-Ex

(xi)
Given array int Z[ ] = {15, 16, 17}; it will occupy ..... bytes in memory.
1. 3
2. 12
3. 24
4. 64

(xii)
In ..... search, the algorithm uses the middle value of the array for the search operation.
1. binary
2. linear
3. bubble
4. selection

(xiii)
A single-dimensional array contains N elements. What will be the last subscript?
1. N
2. N - 1
3. N - 2
4. N + 1

(xiv)
Identify the output of the following code :
```
String P = "20", Q = "19";
int a = Integer.parseInt(P);
int b = Integer.valueOf(Q);
System.out.println(a + "" + b);
```
1. 2019
2. 39
3. 20
4. 19

(xv)
What will be the output of the following code?
```
String c = "Hello i love java";
boolean var;
var = c.startsWith("hello");
System.out.println(var);
```
1. true
2. false
3. 0
4. 1

(xvi)
A string function which removes the blank spaces provided in the prefix and suffix of a string.

1. String.trim()
2. String.ltrim()
3. String.rtrim
4. String.strim

(xvii)
Assertion (A) Identifier is a name given to a package, class, interface, method or variable.
Reason (R) Identifier allows a programmer to refer to the item from other places in the program.

1. Both Assertion (A) and Reason (R) are true and Reason (R) is a correct explanation of Assertion (A).
2. Both Assertion (A) and Reason (R) are true and Reason (R) is not a correct explanation of Assertion (A).
3. Assertion (A) is true and Reason (R) is false.
4. Assertion (A) is false and Reason (R) is true.

(xviii)
Read the following text and choose the correct answer:
The Java compiler breaks the line of code into text (words) is called Java tokens. These are the smallest elements of the Java program. The Java compiler identified these words as tokens. The delimiters separate these tokens. Java tokens help the compiler. Which of the following is a type of Java token?

1. Identifiers
2. Keywords
3. Operators
4. All of these

(xix)
Assertion (A) next() can read the input only till the space.
Reason (R) next() only gets to the line break.

1. Both Assertion (A) and Reason (R) are true and Reason (R) is a correct explanation of Assertion (A).
2. Both Assertion (A) and Reason (R) are true and Reason (R) is not a correct explanation of Assertion (A).
3. Assertion (A) is true and Reason (R) is false.
4. Assertion (A) is false and Reason (R) is true.

(xx)
It can have the same access specifiers used for variables and methods.

1. Method
2. Class
3. Constructor
4. Object

Question 2. Answer the given questions/find the output:

(i)
Write the values of c and d after the execution of the following code.

```
int a = 1;
int b = 2;
int c;
int d;
c = ++b;
d = a++;
c++;
```

(ii)
Observe the following code and write how many times will the loop execute.

```
a = 5;
b = 2;
while(b != 0)
{
   r = a % b;
   a = b;
   b = r;
}
System.out.println(" " + a);
```

(iii)
Write the values assigned to x, y and t after executing the following code.

```
String s1, s2, x, y;
int t;
s1 = "classxii";
s2 = "cbseboard";
x = s1.substring(5, 8);
y = s2.concat(s1);
t = y.length();
System.out.println("x=" + x);
System.out.println("y=" + y);
System.out.println("t=" + t);
```

(iv)
Write the values that will be stored in variables num and sum after execution of the following code.

```
int sum = 0, num = -2;
do
{
   sum = sum + num;
   num++;
} while (num < 1);
```

(v)
The following code has some error(s). Rewrite the correct code and underline all the corrections made.

```
integer counter = 0;
i = 10; num;
for (num = i; num >= 1; num--);
{
   If i % num = 0
   {
      counter = counter + 1;
   }
}
```

(vi)
Rewrite the following program segment using a while instead of the for loop.

```
int f = 1, i;
for(i = 1; i <= 5 ; i++)
{
   f *= i;
   System.out.println(f);
}
```

(vii)
State the method that
(a) converts a string to a primitive float data type.
(b) determines if the specified character is uppercase.

(viii)
Write the Java statement for the following mathematical expression:
$a=(0.02-3y^3)/(x+y)$

(ix)
Give the output of the following expression, when a = 6.
a += ++a + a++ + a-- + a-- + --a + ++a

(x)
Predict the output of the following.
(a) Math.pow(2.5, 2) + Math.ceil(5)
(b) Math.round(2.9) + Math.log(1)

Section – B
(Attempt any four from this section)

Question 3.
Write a program to input a number. Check and display whether it is a Niven number or not. A number is Niven if it is divisible by the sum of its digits.
e.g. Input: 126
Output: 1 + 2 + 6 = 9 and 126 is divisible by 9.

Question 4.
Define a class to accept 10 different decimal numbers (double data type) in a Single Dimensional Array (say, A). Truncate the fractional part of each number of the array A and store their integer part in another array (say, B).

Question 5.
Write a program to print the following patterns.
(i)

```
5
4 5
3 4 5
2 3 4 5
1 2 3 4 5
```

(ii)

```
J
I H
G F E
D C B A
```

Question 6.
Define a class StringMinMax to find the smallest and the largest word present in the string.
E.g.
Input:
Hello this is wow world
Output:
Smallest word: is
Largest word: Hello

Question 7.
A class Employee contains the following member:

Class name : Employee

Data members/Instance variables
String ename : To store the name of employee
int ecode : To store the employee code
double basicpay : To store the basic pay of employee

Member functions/Methods
Employee(- - - -) : An argumented constructor to assign name, employee code and basic salary to data members/instance variables
double salCalc( ) : To compute and return the total salary of an employee
void display( ) : To display ename, ecode, basicpay and calculated salary
The salary is calculated according to the following rules :
Salary = Basic pay + HRA + DA + TA
where, HRA = 20% of basic pay
DA = 25% of basic pay
TA = 10% of basic pay
if the ecode <= 100, then a special allowance (20% of salary) will be added and the maximum amount for special allowance will be 2500.

if the ecode > 100 then the special allowance will be 1000.
Hence, the total salary for the employee will calculated as :
Total Salary = Salary + Special Allowance
Specify the class Employee giving the details of the constructor, double salCalc() and void display(). Define the main() function to create an object and call the functions accordingly to enable the task.

Question 8.
Write a program to accept the year of graduation from school as an integer value from the user. Using the binary search technique on the sorted array of integers given below, output the message "Record exists" if the value input is located in the array. If not, output the message "Record does not exist".
{ 1982, 1987, 1993, 1996, 1999, 2003, 2006, 2007, 2009, 2010 }

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