

The Heritage School, Dehradun

First Preboard Examination, November-December 2024

CLASS:X
Duration: 2 Hours

Subject: Computer Applications
Maximum Marks: 100

COMPUTER APPLICATIONS

Answers to this Paper must be written on the paper provided separately.

You will not be allowed to write during the first 10 minutes.

This time is to be spent in reading the question paper.

Attempt all questions from Section A and any Four questions from Section B.

The intended marks for questions or parts of questions are given in brackets [].

SECTION A

(Attempt all questions.)

Question 1.

Choose the correct answers to the questions from the given options. (Do not copy the question, Write the correct answer only.)

- (i) The expression which uses \geq operator is known as:
✓ a) Relational b) logical c) Arithmetic d) assignment
- (ii) The number of bytes occupied by a character array of 10 elements.
✓ a) 20 bytes b) 60bytes c) 80bytes d) 120 bytes
- (iii) Constructor overloading follows which principle of Object Oriented programming?
a) Inheritance ✓ b) Polymorphism c) Abstraction d) Encapsulation
- (iv) The method `compareTo()` returns when two strings are equal and in lowercase :
a) true ✓ b) 0 c) 1 d) False
- (v) The Scanner class method used to accept words with space:
a) `next()` ✓ b) `nextLine()` c) `Next()` d) `nextString()`
- (vi) What value will `Math.sqrt(Math.ceil(15.3))` return?
a) 16.0 ✓ b) 16 c) 1.0 d) 5.0
- (vii) State the type of loop in the given program segment:
`for (int i = 5; i != 0; i--)`
System.out.println(i);
a) finite ✓ b) infinite c) fixed d) null
- (viii) Give output of the following String methods:
"SUCCESS".indexOf('S') + "SUCCESS".lastIndexOf('S')
a) 0 ✓ b) 5 c) 6 d) -5

[20]

Question - 01

(1) Relational

\leq

\geq

(2) $1 \text{ char} = 2 \text{ bytes}$

10 char

elements =

2×10

$$= 20 \text{ bytes}$$

(3) polymorphism

encapsulation -

wrapping of
data into single
fixed unit mainly
Fun? (methods) +
variables

Abstraction - concept of hiding internal working or
complexity of an object & exposed to essential
features only.

(4) O

`compareTo()` — Ist string

= IInd string $\rightarrow 0$
 $>$ \rightarrow true
 $<$ \rightarrow false

(5) nextline()



(6) $\text{Math.ceil}(15.3) \rightarrow 16$

$\text{Math.sqrt}(16) \rightarrow \underline{\underline{4.0}}$

(7) $\text{for}(\text{int } i=5; i!=0; i-=2)$ 5
{} 3
 $\{\text{sopln}(i);\}$ 1
{} -1
infinite -3
-5

(8) $0 + 6 = \underline{6}$

(9) String A = "56.0"
B = "94.0";

C → 56.0

D → 94.0

150.0

(10) Pure Method

0 1 2 3

(11) COMPOSITION

POS

(12) Pure Method

(13) $x = 98$

$\text{char ch} = (\text{char}) x;$

ch = B

(14) double

(ix) Give the output of the following code:
String A = "56.0", B = "94.0";
double C = Double.parseDouble(A);
double D = Double.parseDouble(B);
System.out.println(C+D));
a) 100 ✓ b) 150 c) 150.0 d) 100.0

(x) Method which is a part of a class rather than an instance of the class is termed as:
a) Impure method ✓ b) Pure method c) Constructor d) Destructor

(xi) The output of the function "COMPOSITION".substring(3, 6):
a) POSI ✓ b) POS c) MPO d) MPOS

(xii) A method which does not modify the value of variable is termed as
a) impure method ✓ b) pure method c) primitive class d) user defined method

(xiii) int x = 98; char ch = (char)x; What is the value in ch?
a) b ✓ b) A c) B d) 97

(xiv) Which of the following data type cannot be used with switch case construct?
a) int b) char c) String ✓ d) double

(xv) Parameter used in the method call statement are
a) actual parameter ✓ b) informal parameters c) formal parameters d) void parameters

(xvi) Consider the following program segment in which the statements are jumbled. Choose the correct order of statements to swap two variables using the third variable.
void swap(int a, int b){
 a = b; --> (1)
 b = t; --> (2)
 int t = 0; --> (3)
 t = a; --> (4)
}
a) (1) (2) (3) (4)
b) ✓ (3) (4) (1) (2)
c) (1) (3) (4) (2)
d) (2) (1) (4) (3)

(xvii) A student executes the following code to increase the value of a variable 'x' by 2. He has written the following statement, which is incorrect.
 $x += 2;$
What will be the correct statement?
A. $x += 2;$ ✓
B. $x = 2;$
C. $x = x + 2;$ ✓
a) Only A
b) Only C
c) All the three
d) Both A and C

2

 Created with
Notewise

(15) Actual Parameters

(17) $x = x + 2$

$x + = 2;$

Both A & C

(19) 1

(20) Only 1

(xix) What will be the output for:
System.out.print(Character.toLowerCase('1'));

- a) 0 ✓ b) 1 c) A d) True

(xx) Which of the following is a valid Integer constant? Information and operation

1. 4
2. 4.0
3. 4.3f
4. "four"

- ✓ Only 1
b) 1 and 3
c) 2 and 4
d) 1 and 2

Question 2:

a) When there is no explicit initialization, what are the default values set for variables in the following cases?

- (a) Integer variable
(b) String variable

[2]

b) Rewrite the following code using single if statement.

```
if(code == 'g')  
    System.out.println("GREEN");  
else if(code == 'G')  
    System.out.println("GREEN")
```

[2]

c) Evaluate the given expression when the value of a = 2 and b = 3.

```
b *= a++ - ++b + ++a;  
System.out.println("a = " + a);  
System.out.println("b = " + b);
```

[2]

d) A student executes the following program segment and gets an error. Identify the statement which has an error. Correct the same to get the output as WIN.

```
boolean x = true;  
switch(x){  
    case 1: System.out.println("WIN"); break;  
    case 2: System.out.println("LOSE");  
}
```

[2]

e) Write the Java expression for:

$$\sqrt[3]{x} + \sqrt{y}$$

f) How many times will the following loop execute? Write the output of the code:

```
int x = 10;  
while(true){  
    System.out.println(x++ * 2);  
    if(x % 3 == 0)  
        break;  
}
```

[2]

(d) boolean x = true;

Switch(x)

(16) void swap (int a, int b)

{

$$a = b; \quad \text{--- (1)}$$

$$b = t; \quad \text{--- (2)}$$

$$\text{int } t = ^o j \quad \text{--- (3)}$$

$$t = a; \quad \text{--- (4)}$$

}

3 4 1 2

Question - 02

(a) Integer $\rightarrow 0$

String \rightarrow null or
" "

(b) if (code == 'g')

{
 System.out.println("GREEN");

}

else

{

System.out.println("GREEN");

}

✓ 4 4

(c) a = ✓ b = ↗

b * = a++ - ttb + tta

b * = 2 - ↗ + ↗

b * = 2 - ↗ + ↗



$\left\{ \begin{array}{l} \text{case 1 : } \text{System.out.println ("WIN");} \\ \quad \text{break;} \\ \text{case 2 : } \text{System.out.println ("LOSE");} \\ \quad \text{break;} \\ \end{array} \right.$

 $b = 8$
 $a = 4$

(e) $\sqrt[3]{x} + \sqrt{y} = \underline{\text{math.cbrt}(x) + \text{math.sqrt}(y)}$

(f) $\text{int } x = 10;$
 $\text{while (true)} \{$
 $\quad \text{System.out.println (x++ * 2);}$
 $\quad \text{if (x \% 3 == 0)}$
 $\quad \quad \text{break;}$
 $\}$

$$x = \cancel{10} + \cancel{12} \quad \begin{array}{|c|c|} \hline & 20 \\ \hline & 22 \\ \hline \end{array}$$

g) Write the output of the following String methods:

String x = "Galaxy", y = "Games";

(a) System.out.println(x.charAt(0) == y.charAt(0));

[2]

(b) System.out.println(x.compareTo(y))

;

h) Consider the following program segment and answer the questions given below:

int x[][] = {{2, 4, 5, 6}, {5, 7, 8, 1}, {34, 1, 10, 9}};

(a) What is the position of 34?

[2]

(b) What is the result of x[2][3] + x[1][2]?

i) String s1 = "45.50"; String s2 = "54.50";

double d1 = Double.parseDouble(s1);

double d2 = Double.parseDouble(s2);

[2]

int x = (int)(d1 + d2);

What is the value of x?

j) Differentiate between boxing and unboxing..

[2]

(g) $x = \text{"Galaxy"};$
 $y = \text{"Games"};$

(a) True

(b) $l < m \rightarrow \text{ne}$

(h) $\underline{\underline{(2,0)}}$

$9 + 8 = \underline{\underline{17}}$



$$x[][] = \begin{bmatrix} 2 & 4 & 5 & 6 \\ 5 & 7 & 8 & 1 \\ 34 & 1 & 10 & 9 \end{bmatrix}$$

(i) $d1 = 45.50$

$$\begin{array}{r} d2 = 54.50 \\ \hline 100.00 \end{array}$$

\rightarrow 100

(j)

(i)

boxing unboxing

process \rightarrow

convert \rightarrow

primitive data type

to object with

its corresponding wrapper class.

(2) Example : Convert an int to an Integer

