

M. P. BIRLA FOUNDATION HIGHER SECONDARY SCHOOL
Selection Examination, 2020-2021
Class – X
Subject – Computer Applications

TIME : 2 Hrs.
F.M. : 100

This paper is divided into two sections Section A and Section B. Section A is compulsory. Attempt all questions from it. Answer any **FOUR** questions from Section B. The intended marks for each question is given in braces []

SECTION A
(Attempt **ALL** questions)

[40 Marks]

Question 1

- (a) State the method that:
- (i) Converts a primitive float data type to String type data
 - (ii) returns the position of the first occurrence of a particular character [2]
- (b) Rewrite the following program segment using do_while instead of for statement [2]
- ```
int f = 1, i;
for(i=1;<=5;i++)
{ f=f + i;
 System.out.println(f); }
```
- (c) Write Java statement to create an object swift of class car. [2]
- (d) What will be the output of the following code [2]
- ```
a=++a - --b + a-- + ++b; when initially a=10 and b = 7
```
- (e) String a[] = { “world”, “human”, “flower”, “school”, “education”}; [2]
- (i) System.out.println(a[4].substring(3,5));
 - (ii) System.out.println(a[1].charAt(4));

Question 2

- (a) What is infinite loop? Give eg. [2]
- (b) Write the function of ‘import’ keyword in Java. [2]
- (c) Define encapsulation. [2]
- (d) Explain the concept of constructor overloading with example. [2]
- (e) State difference between actual and formal parameter. [2]

P.T.O.

Question 3

- (a) Name four types of integer data type of Java. [2]
- (b) Name any two java packages. [2]
- (c) Write the output for the following: [2]
`String s1 = "Accounts"; String s2 = "Number" ;`
`System.out.println (s2.substring(0).concat (s1.substring(7)));`
- (d) `System.out.print("INCOME ");` [2]
`System.out.println("TAX");`
Choose the correct option for the output of the above statements
(i) INCOME TAX
(i) INCOME
TAX
- (e) Write a java statement for each to perform the following task: [2]
(ii) Find and display the position of the last 'a' in a string st.
(ii) Extract the fifth character of the string st using substring().
- (f) Give the output of the following string functions: [2]
`"INTRODUCTION".compareTo ("INTRO")`
- (g) Give the output of the following program segment and also mention how many times the loop is executed: [2]
`int i;`
`for (i = 5 ; i <=10; i ++) ;`
`System.out.println(i*5);`
`System.out.println(i);`
- (h) If `int arr [] = { 4, 3,7, 8, 9,10}`; what are the values of p and q ? [2]
(i) `p = arr[1]*arr[5]+arr[3]`
(ii) `q = arr.length`
- (i) Name the type of error (syntax, runtime or logical error) in each case given below: [2]
(i) `int a=10/0;`
(ii) `double x;y;z;`
- (j) Analyze the following program segment and determine how many times the body of the loop will be executed (show the working).
`int x=5;`
`int y= 50;`
`while(x<=y)`
`{`
`y=y/x;`
`System.out.println(y);`
`}`

SECTION B**[60 Marks]***(Attempt ANY FOUR questions)*

*The answers in this Section should consist of the Programs in either Blue J environment.
Each program should be written using Variable descriptions /Mnemonic Codes so that the
logic of the program is clearly depicted.
Flow-Charts and Algorithms are not required.*

Question 4:

Define a class employee having the following description :

Data members/instance variables:

int pan — to store personal account number

String name — to store name

double tax income — to store annual taxable income

double tax — to store tax that is calculated

Member functions:

(i) Constructor to initialize data members

(ii)input() — Store the pan number, name, taxable income

(iii)calc() — Calculate tax for an employee

(iv) display() — Output details of an employee

Compute the tax according to the given conditions .

Total annual Taxable Income	Tax Rate
Upto Rs. 1,50,000	No tax
From 1,50,001 to 2,50,000	Rs. 5,000 + 20% of the income exceeding Rs. 1,50,000

Write a main method to create an object of the class and call the above methods.
[15]

Question 5

Write a menu driven program to perform the following:

1. Display 0,3,8,15,.....99
2. Display the first 15 numbers of the Pell series i.e. ... 1, 2, 5, 12, 29, 70....
Pell series starts from 1 and 2, and subsequent numbers are the sum of the twice of the previous number and the number previous to previous number.

[15]

Question 6

Write a program to perform linear search on a list of integers given below, to search for an element input by the user. If it is found, display the message "Record exists" . If not, output the message "Record does not exist".

{2012, 2020, 2015, 2016, 2019, 2013, 2006, 2017, 2010, 2009} [15]

P. T. O.

Question 7

Store name of 20 friends and their corresponding height in 2 single dimensional arrays. Using bubble sort technique print the names height-wise (starting with the tallest) along with height. [15]

Question 8

Overload a function pattern() to perform the following tasks
void pattern () – generates the following pattern using loop.

```
*  
**  
***  
****
```

void pattern (int n) – generates the following pattern up to n no. of lines.

```
1  
2 3  
4 5 6  
....  
Upto n
```

[15]
