

Computer Application Question Paper

2007

General Instructions:

1. This Paper is divided into two Sections.
2. Attempt all questions from Section A and any four questions from Section B.
3. The intended marks for questions or parts of questions are given in brackets.

SECTION A (40 Marks)

Attempt all questions

Question 1 [10]

- (a) Name two types of Java programs.
- (b) Define Instance Variable. Give an example of the same.
- (c) Differentiate between Binary Search and Linear Search.
- (d) Assign the value of pie (i.e. 3.142) to a variable with requisite data type.
- (e) Explain with an example the if-else-if construct.

Question 2 [10]

- (a) Differentiate between Formal Parameter and Actual Parameter.
- (b) Why do we need a constructor as a class member?
- (c) Explain the term type casting.
- (d) Name the following:-
 - i. A package that is invoked by default.
 - ii. A key word, to use the classes defined in a package.
- (e) Name the class that is used for different mathematical functions. Give an example of a mathematical function.

Question 3

- (a) State the difference between = and ==. [2]
- (b) Write an equivalent Java syntax for the following expression:- $a = 0.05 - 2y^3 / x - y$
[2]
- (c) Rewrite the following using Ternary operator
if (income <= 10000)
tax = 0 ;
else
tax = 12 ; [2]
- (d) Write a statement for each of the following:-
 - i. Store a number 275 as a String
 - ii. Convert the string to a numeric value
 - iii. Add it to the existing total of 1000 to update the total. [3]
- (e) (i) What is the role of the keyword void in declaring functions?
(ii) If a function contains several return statements, how many of them will be executed?
(iii) Which OOP principle implements function overloading? [3]
- (f) What is the output of the following:-
 - i. System.out.println ("four :" + 4 + 2);
System.out.println (" four : "+(2+2)); [2]
 - ii. String S1 = "Hi";
String S2 = "Hi"; String S3 = "there";
String S4 = "HI";
System.out.println(S1 + "equals" + S2 + "→" + S1.equals(S2));
System.out.println(S1 + "equals" + S3 + "→" + S1 .equals(S3));

```
System.out.println(S1 + "equals" + S4 + "→" + S1 .equals(S4));  
System.out.println(S1 + "EqualIgnoreCase" +S4 + "→" +  
S1.EqualIgnoreCase(S4)); [4]
```

(g) Evaluate the following expressions, if the values of the variables are a = 2, b=3 and c=9

- i. $a - (b++) * (-c)$
- ii. $a * (++b) \% c$ [2]

SECTION B (60 Marks)

Question 4

Define a class salary described as below:-

Data Members : Name, Address, Phone, Subject Specialization, Monthly Salary, Income Tax.

Member methods : (i) To accept the details of a teacher including the monthly salary.

(ii) To display the details of the teacher.

(iii) To compute the annual Income Tax as 5% of the annual salary above Rs.1,75,000/-.

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

Question 5

Write a program to compute and display the sum of the following series:- [15]

$1 + 2$
 1×2
+
 $1 + 2 + 3$
 $1 \times 2 \times 3$
+.....+
 $1 + 2 + 3 + 4 \dots n$
 $1 \times 2 \times 3 \times 4 \dots n$

Question 6

Write a program to initialize the given data in an array and find the minimum and maximum values along with the sum of the given elements.

Numbers : 2 5 4 1 3

Output : Minimum value : 1

Maximum value : 5

Sum of the elements : [15]

Question 7

Write a program to enter a sentence from the keyboard and count the number of times a particular word occurs in it. Display the frequency of the search word.

Example:

INPUT:

Enter a sentence : the quick brown fox jumps over the lazy dog.

Enter a word to be searched : the

OUTPUT:

Searched word occurs : 2 times. [15]

Question 8

Using a switch statement, write a menu driven program to convert a given temperature from Fahrenheit to Celsius and vice versa. For an incorrect choice, an appropriate error message should be displayed. [15]

(HINT : $C = 5.9 \times (F - 32)$ and $F = 1.8 \times C + 32$)

Question 9

Write a program using a method `Palin()`, to check whether a string is a Palindrome or not. A Palindrome is a string that reads the same from left to right and vice versa.

E.g. MADAM, ARORA, ABBA, etc. [15]