

## Computer Application Question Paper

2006

### 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) Define encapsulation.
- (b) Explain the term object using an example.
- (c) Define a variable.
- (d) What is a wrapper class? Give an example.
- (e) What is the purpose of the new operator?

#### Question 2 [10]

- (a) State the two kinds of data types.
- (b) Write the corresponding expressions for the following mathematical operations:-
  - i.  $a^2 + b^2$
  - ii.  $z = x^3 + y^3 - xy / z$
- (c) Define an impure function.
- (d) Differentiate between if and switch statements.
- (e) What will be the output for the following program segment?  

```
String s = new String("abc");  
System.out.println(s.toUpperCase());
```

### Question 3

(a) What is meant by private visibility of a method? [2]

(b) Find and correct the errors in the following program segment:-

```
int n[ ] = (2,4,6,8,10);  
for (int i = 0; i <= 5; i ++)  
System.out.println("n[" + i + "] = " + n[i ]); [2]
```

(c) Explain function overloading with an example. [4]

(d) Find the output of the following program segment, when:

```
i.   val = 500  
ii.  val = 1600  
      int val, sum, n = 550;  
      sum = n + val > 1750? 400 : 200;  
      System.out.println(sum); [2]
```

(e) What is a default constructor? [2]

(f) What will be the output for the following program segment?

```
int a = 0, b = 30, c = 40;  
a = --b + c++ + b;  
System.out.println("a = " + a); [2]
```

(g) Differentiate between compareTo( ) and equals( ) methods. [2]

(h) What is a package? Give an example. [2]

(i) Explain the function of a return statement. [2]

### SECTION B (60 Marks)

Attempt any four questions from this Section.

### Question 4

Write a program to calculate and print the sum of odd numbers and the sum of even numbers for the first n natural numbers.

The integer n is to be entered by the user. [15]

### Question 5

A cloth showroom has announced the following festival discounts on the purchase of items, based on the total cost of the items purchased:- Total cost Discount (in Percentage)

<u>Total cost</u>	<u>Discount (in Percentage)</u>
Less than Rs. 2000	5%
Rs. 2001 to Rs. 5000	25%
Rs. 5001 to Rs. 10000	35%
Above Rs. 10000	50%

Write a program to input the total cost and to compute and display the amount to be paid by the customer after availing the discount. [15]

### Question 6

Consider the following statement:-

"January 26 is celebrated as the Republic Day of India".

Write a program to change 26 to 15, January to August, Republic to Independence and finally print

"August 15 is celebrated as the Independence Day of India". [15]

### Question 7

Write a program that outputs the results of the following evaluations based on the number entered by the user.

- (i) Natural logarithm of the number
- (ii) Absolute value of the number
- (iii) Square root of the number
- (iv) Random numbers between 0 and 1. [15]

### Question 8

The marks obtained by 50 students in a subject are tabulated as follows:- Name Marks



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Name	Marks
.	.
.	.
.	.

Write a program to input the names and the marks of the students in the subject.  
Calculate and display:-

- i. The subject average marks (  $\text{subject average marks} = \text{subject total} / 50$  )
- ii. The highest mark in the subject and the name of the student.
- iii. The maximum marks in the subject are 100) [15]

### Question 9

Write a program to accept 15 integers from the keyboard, assuming that no integer entered is a zero. Perform selection sort on the integers and then print them in ascending order. [15]

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