

This Paper is divided into two Sections.**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(40 marks)****(Attempt all questions from this Section.)****Question 1****[20]**

Choose the correct answers to the questions from the given options.

- (i) A mechanism where one class acquires the properties of another class:
 a. Polymorphism b. Inheritance
 c. Encapsulation d. Abstraction
- (ii) Identify the type of operator &&;
 a. Ternary b. Unary
 c. Logical d. Relational
- (iii) The Scanner class method used to accept words with space:
 a. next() b. nextLine()
 c. Next() d. nextString()
- (iv) The keyword used to call package in the program:
 a. impart b. export
 c. import d. package
- (v) The absence of which statement leads to fall through situation in switch case statement:
 a. continue b. break
 c. return d. System.exit(0)
- (vi) int x=(int)32.8; is an example of _____ typecasting.
 a. implicit b. explicit
 c. automatic d. coercion
- (vii) The code obtained after compilation is known as:
 a. source code b. object code
 c. java byte code d. machine code
- (viii) What is the output of Math.ceil(5.4)+Math.ceil(4.5)?
 a. 10.0 b. 11.0
 c. 12.0 d. 9.0
- (ix) The extension of a Java source code file is:
 a. exe b. obj
 c. jvm d. java
- (x) Which of the following data type cannot be used with switch case construct?
 a. int b. char
 c. String d. double
- (xi) Missing of a semicolon in a statement is what type of error?
 a. Logical b. Syntax
 c. Runtime d. No error
- (xii) Assertion(A):Increment and decrement operator are binary operators.
 Reason(R):Increment and decrement operator requires only one operand.
 a. Assertion and Reason both are correct.
 b. Assertion is true and Reason is false.

- c. Assertion is false and reason is true.
- d. Assertion and reason both are false.

- (xiii) Assertion(A): Value of variable cannot be fixed.
Reason(R): Variable's value can be fixed by using final keyword.
- a. Assertion and Reason both are correct.
 - b. Assertion is true and Reason is false.
 - c. Assertion is false and Reason is true.
 - d. Assertion and reason both are false.

- (xiv) Read the following text, and choose the correct answer:
A class encapsulates Data members that contains the information necessary to represent the class and Member methods that perform operations on the data member.
What does a class encapsulates?
- a. Information and operation.
 - b. Data members and Member methods.
 - c. Data members and information.
 - d. Member methods and operation.

- (xv) The Scanner is a _____ class.
- a. Primitive
 - b. Derived
 - c. Wrapper
 - d. Super class

- (xvi) Ternary operator is a _____ operator.
- a. Logical
 - b. Arithmetic
 - c. Relational
 - d. Conditional

- (xvii) What will be the value of $x*=y+5$ if $x=2$ and $y=2$?
- a. 14
 - b. 9
 - c. 5
 - d. 7

- (xviii) Which of the following is not a binary operator?
- a. >=
 - b. ==
 - c. !
 - d. %

- (xix) _____ supports reusability.
- a. Encapsulation
 - b. Polymorphism
 - c. Abstraction
 - d. Inheritance

- (xx) Which escape sequence behaves like tab key?
- a. \n
 - b. \b
 - c. \r
 - d. \t

Question 2

[20]

- a. Rewrite the following program segments using ternary operator:

```
char r; int m;
if(marks>500)
r='P';
else
r='F';
```

- b. Write the value of n after execution:

```
char ch ='d';
int n = ch +5;
```

- c. Rewrite the following using switch case:

```
if (c==1)
n=n*3;
else if (c==4)
n=n-2;
else if (c==3)
n=n+5;
else
```



- System.out.println("Wrong!Try again");
- Arrange the following operators given below in order of higher precedence to lower precedence.(i) && (ii) % (iii) >= (iv) ++
 - State the value of G after the execution of the following statement,
if (i) m=175 (ii) m=50
G = (m +1000) > 1100? 80 : 60 ;
 - State one difference between break statement and System.exit(0)
 - Give the output of the following expressions:
 - Math.floor(- 4.7)
 - Math . ceil (3.4) + Math. pow(2,3);
 - What will be the output of the following ,if the value of x=15
x + = - - x + x + x - - + 5;
 - If x= 4, y= 7,d=10 then state the results of the following expression:
 - d - y ! = x + 3
 - x + y = = d -1
 - Write an equivalent Java expression for the following mathematical expressions-
 - $ut + 0.5at^2$
 - $(a+b)^2 +(c+ d)^2$

Section B(60 Marks)

(Answer any four questions from Section.)

Question 3

[15]

Write a program to input three different single digit numbers between 1 and 9 (both inclusive).Display the greatest and smallest three digit number.

Sample Input: 2, 7, 4

Sample Output:

Greatest three digit number=742

Smallest three digit number=247

Question 4

[15]

Define a class Electricity to input consumer's name and number.

The Electricity Board charges from their consumers according to the units consumed per month. The amount is calculated as per the tariff given below:

Units Consumed	Charges
Up to 100 units	Rs 5 per unit
For next 200 units	Rs 6 per unit
For next 300 units	Rs 7 per unit
More than 600 units	Rs 8 per unit

The program displays money receipt with the following information after calculating the amount.

Money Receipt:

Consumer's Number:

Consumer's Name:

Units consumed:

Amount to be paid:

Question 5

[15]

The City library charges fine from members if the books were not returned on time as per the following table:

Number of days late	Magazines fine per day	Text books fine per day
Up to 5 days	Rs 1	Rs 2
6 to 10 days	Rs 2	Rs 3
11 to 15 days	Rs 3	Rs 4
16 to 20 days	Rs 5	Rs 6
More than 20 days	Rs 6	Rs 7

Using the switch statement, write a program in java to input name of person, number of date late and type of book-‘M’ for Magazine and ‘T’ for Text book. Compute the total fine and display it along with the name of the person.

Question 6

[15]

An airline announces discount on tickets depending upon destination chosen by the passenger from the following:

Destination	Rate of ticket(per person)
America	Rs 50000.0
Singapore	Rs 20000.0
Japan	Rs 40000.0
Thailand	Rs 30000.0

The Discount will be given as per the given criteria:

Ticket Amount	Discount on Total Amount
Above Rs 200000	25%
Rs 150001 to Rs 200000	20%
Rs 100001 to Rs 150000	15%
Less than Rs 100000	10%

Write a Java program to input name of the passenger/group head (in case of more than 1 passenger), number of passengers and destination code viz: A or a for America, S or s for Singapore, J or j for Japan, and T or t for Thailand. Calculate the total ticket amount and discount amount. Find the net balance to be paid excluding the discount. Print name , number of passengers, destination code, discount and total amount to be paid.

Question 7

[15]

Define a class Employee and input the pan number, name, taxable income. Write a program to compute the tax according to the given conditions and display the output as per the given format.

Total Annual Taxable Income	Tax Rate
Up to Rs 100000	No Tax
From 100001 to 150000	10% of the income exceeding Rs 100000
From 150001 to 250000	Rs 5000+20% of the income exceeding Rs 150000
Above 250000	Rs 25000+30% of the income exceeding Rs 250000

Output:

Pan number	Name	Taxable-Income	Tax
-----	-----	-----	-----

Question 8

[15]

Write a program to create a class Volume to find the volume of a cube, a sphere and a cuboid and print all the details.

- Volume of a cube= $s*s*s*s$
- Volume of a sphere= $\frac{4}{3} \pi*r*r*r$
- Volume of a cuboid= $l*b*h$