

Question 1.

Choose the correct alternatives from the give options. (Do not copy the questions)

[20]

- (i) Wrapping & binding of data and functions in one unit is :
(a) Encapsulation (b) Inheritance (c) Abstraction (d) Modularity
- (ii) Which is an identifier among this:
(a) int (b) a (c) = (d) 5
- (iii) Which among the following is the case of automatic type conversion:-
(a) long to int (b) int to long (c) int to char (d) None
- (iv) ASCII value of character x is:
(a) 120 (b) 121 (c) 87 (d) 88
- (v) Which among the following is a conditional construct:-
(a) if-else (b) if (c) nested if (d) All of these
- (vi) _____ statement can takes the execution to next iteration of a loop in a nested loop structure:
(a) continue (b) break (c) exit(0) (d) void
- (vii) Which among the following is a valid comment:-
(a) / (b) / (c) \ (d) \
- (viii) Which of the below statement check the condition only for the equality relation?
(a) if-else (b) switch (c) both a & b (d) None
- (ix) In java Scanner class can only be used if you import the package:
(a) java.lang (b) java.util (c) java.io (d) None
- (x) Fall through condition can be applied in switch case by:
(a) eliminating break (b) implementing break (c) eliminating continue (d) implementing continue
- (xi) If you need to find out the square of a number which among the following is/ are correct:
(a) Math.pow(n,2) (b) n*n (c) Both (a) & (b) (d) None
- (xii) Which of the following is the use of an Abstraction?
(a) Securing the data and behavior (b) Hiding the features and behavior
(c) Protecting the features and behavior (d) None of these
- (xiii) Which among the following is a valid declaration:-
(a) int =5; (b) a=5; (c) int a; (d) int 5=a;
- (xiv) Name the keyword used to allocate the memory to the object.
(a) class (b) object (c) new (d) main

(xv) What will be stored in variable y. [int y=50/3]

- (a) 16 (b) 16.0 (c) 16.5 (d) None

(xvi) next() method is used to accept:-

- (a) integer value (b) character value (c) String value (d) None

(xvii) What is the outcome of a relation operator?

- (a) char (b) int (c) double (d) boolean

(xviii) Which of the below loop always executes at least once?

- (a) while (b) do-while (c) for (d) All of these

(xix) The correct statement to generate random number between 1 and 10 (both inclusive) is:

- (a) (int) ((10-1) * Math.random()) (b) (int) ((1+(10-1) * Math.random()))
(c) (int) (8 * Math.random()) (d) (int) (Math.random(1-10))

(xx) _____ loop is used for a known number iteration.

- (a) while (b) for (c) do-while (d) if

Question 2

State the output of the following:-

[10]

(a) int a=5, b=3, c, d; [Find the value of c and d]

c = ++a - b - - * 2;

d = a/2 * 5 - --b;

= 5/2 * 5 - --b;

(b) int x=5;

while (x!=0)

{
System.out.print (x+ " ");

++ x;

}

(c) Math.abs(Math.ceil(-6.35))

(d) Math.max(-17, -19) + Math.min(19, 17)

(e) [input a=1]

switch (a)

{

case 1: System.out.println("To");

case 2: System.out.println("Test");

}

Question 3

(a) Write java expression for : $\frac{\sqrt{a^2}}{2a}$

[2]

(b) Write a java statement to check whether sum of a and b is greater than or equal to the difference of c and d.

[2]

(c) Write down the differences between primitive data type and non-primitive data type.

[2]

(d) What is a class? Why it is called an object factory?

[2]

(e) Define JVM.

[2]

Section B.

(Attempt any five questions from this section)

Question 4.

- (a) Define (i) Byte Code (ii) Polymorphism [15]
- (b) Write any 5 rules for naming identifier.
- (c) Write and explain all the three types of errors in java with example.

Question 5.

Write Programs to:-

- (a) Input any 3 number and print out the largest.
- (b) Input 3 sides of a triangle and check whether it is equilateral, isosceles or scalene.
- (c) Input any numbers and print the sum of each digit.
- (d) Input any number and find the square of its last digit.
- (e) Input the temperature in Fahrenheit and display its equivalent temperature in Celsius. $[c = (f-32) \times 5/9]$ [15]

Question 6.

Write a program to display a menu and perform accordingly:-

- Press 1 for area of a triangle
- Press 2 for area of a rectangle
- Press 3 for area of a square
- Press 4 for Exit

Question 7

Write a program to input any number and check whether it is a special 2 digit number or not. A special 2 digit number is a number where summation of the product of its digit and addition of digit is equal to the number itself. For Example 59 is a special 2 digit number, where $\{(5 \times 9 + 14) + (5+9) = 59\}$ [15]

Question 8.

- (a) Write a program to input any number and check whether it is palindrome number or not. A palindrome number is a number which once reversed remains same. For Example 121 is a palindrome, which once reversed remain 121. [15]
- (b) Write a program to input any number and check whether it is a perfect number or not. A perfect number is a number whose sum of the factors (excluding itself) is equal to the original number. For example 6 is a perfect number whose factors are 1, 2 & 3 and the addition of the factors is $(1+2+3)=6$.

Question 9.

(a) Write a program to find out the sum of the following series:-

$$S = \frac{1}{x^2} + \frac{2}{x^3} + \frac{3}{x^4} + \frac{4}{x^5} + \dots + \frac{n}{x^{n+1}}$$

(b) Write a program to generate the given pattern:-

```
1 2 3 4 5
1 2 3 4
1 2 3
1 2
1
```