



MADRAS INSTITUTE OF TECHNOLOGY
ANNA UNIVERSITY
ASSOCIATION OF COMPUTER TECHNOLOGISTS



COFFEE WITH JAVA

RULES:

- On the answer sheet team member should stick their team QR and write their unique participant id below it.
 - Don't leave the app during the test.
 - Time limit - 45mins.
 - Keep your mobile phone in airplane mode.
 - Only java codes are acceptable.
 - * questions carries extra mark.
-

PART-A

1. System class is defined in ?
 - a) java.util package
 - b) java.lang package
 - c) java.io package
 - d) java.awt package
 - e) None of these
2. which of these classes defined java.io and used for file-handling and are abstract?
 - A.InputStream
 - B.FileInputstream
 - C.PrintStream
 - D.FileWriter
 - a) only A
 - b) only C
 - c) both A and C
 - d) both A and B
 - e) None of these
3. Public class A {
Public static void main(String args[]){
String x = "J1A2V3A4";
String[] tokens = x.split("\\d");
for(String s:tokens)

- ```

 System.out.println(s);
 }
}

```
- 1234
  - JAVA1234
  - JAVA
  - None of these
4. Predict the output for the below code.
- ```

class A {
    public Static void main(String args[])
    {
        int x=10;
        if(x==10){
            int y=20;
            System.out.println(x+" "+y+" ");
        }
        y=x*2;
        System.out.Println(x+" "+y);
    }
}

```
- 10 20 10 100
 - 10 20 10 20
 - 10 20 10 10
 - Compilation Error
5. Which of these process occur automatically by the java runtime system?
- Serialization
 - Garbage collection
 - File Filtering
 - All of the mentioned
6. Which of the following is true about cloning?
- By default clone method do shallow copy.
 - If class doesn't implement Cloneable than calling clone method on its object will throw **CloneNotSupportedException**.
 - If class doesn't extend Cloneable than calling clone method on its object will throw **CloneNotSupportedException**.
 - Both a and b
7. Predict the output of the following program.*
- ```

class A {
 Public static void main(String args[])
 {
 byte b;
 int i=256;
 double d = 325.9

 b = (byte) i;
 System.out.println(b);
 }
}

```

```
i = (int) d;
System.out.println(i);
```

```
b = (byte) d;
System.out.println(b);
}
```

- a) 258 325 325.9
- b) 258 325 69
- c) 2 325 69
- d) Error

8. What happens to the thread when garbage collection kicks off?
- a) The thread continues its operation
  - b) Garbage collection cannot happen until the thread is running
  - c) The thread is paused while garbage collection runs
  - d) The thread and garbage collection do not interfere with each other
9. What is the output of the following program?\*

```
import java.io.IOException;
class Derived
{
 public void getDetails() throws IOException //line 23
 {
 System.out.println("Derived class");
 }
}
public class Test extends Derived
{
 public void getDetails() throws Exception //line 24
 {
 System.out.println("Test class");
 }
 public static void main(String[] args) throws IOException //line 25
 {
 Derived obj = new Test();
 obj.getDetails();
 }
}
```

- a) Compilation error due to line 23
  - b) Compilation error due to line 24
  - c) Compilation error due to line 25
  - d) All the above
10. Which of these lines of Java code will give better performance?
- 1. a | 4 + c >> b & 7;
  - 2. (a | ((( 4 \* c ) >> b ) & 7 ))
- a) 1 will give better performance as it has no parentheses
  - b) 2 will give better performance as it has parentheses

- c) Both 1 & 2 will give equal performance
  - d) Dependent on the computer system
11. Which of these interface extends DataOutput interface?
- a) Serializable
  - b) Externalization
  - c) ObjectOutputStream
  - d) ObjectInputStream
12. Which of these statements are incorrect?
- a) The left shift operator, <<, shifts all of the bits in a value to the left specified number of times.
  - b) The right shift operator, >>, shifts all of the bits in a value to the right specified number of times.
  - c) The left shift operator can be used as an alternative to multiplying by 2.
  - d) The right shift operator automatically fills the higher order bits with 0.
13. Which of these modifiers can be used for a variable so that it can be accessed from any thread or parts of a program?
- a) Transient
  - b) Volatile
  - c) Global
  - d) No modifier is needed
14. Predict the output of the following program.

```

abstract class demo
{
 public int a;
 demo(){
 a = 10;}
 abstract public void set();
 abstract final public void get();
}
class Test extends demo
{
 public void set(int a){
 this.a = a;
 }
 final public void get(){
 System.out.println("a = " + a);
 }
 public static void main(String[] args){
 Test obj = new Test();
 obj.set(20);
 obj.get();
 }
}

```

- a) a = 10
- b) a = 20
- c) Compilation error

- d) None
15. Type IV JDBC driver is a driver
- Which is written in c++
  - Which requires intermediate layer
  - Which communicates through java sockets
  - Which translates Jdbc function calls into API not native to dbms
16. What is the maximum thread priority in java?
- 10
  - 8
  - 12
  - 6
17. Default value of java thread ?
- 10
  - 0
  - 1
  - 5
18. What is the value of x after execution?
- ```
Int x=0,y=0,z=0;
x=(++x + y--)*z++;
```
- 1
 - 1
 - 0
 - 2
 - 2
19. Which of the following expression that evaluates true for the number x is between 1 to 100 or the number is negative?*
- $1 < x < 100 \parallel x < 0$
 - $(1 > x > 100) \parallel (x < 0)$
 - $((x < 100) \&\& (x > 1)) \parallel (x < 0)$
 - $((x < 100) \&\& (x > 1)) \&\& (x < 0)$
20. What is the value of a[1] after the following code is executed ?*
- ```
int[] a = {0,2,4,1,3};
for(int i = 0; i < a.length(); i++)
 a[i] = a[(a[i]+3) % a.length];
```
- 0
  - 2
  - 4
  - 1
  - 3

## PART-B

- 1) Bailey Avenue, San Jose has a Cookie vending machine which gives out cookies as per the customer's choice. The machine initially displays the complete menu along with their availability and allows the customer to

make a choice(s). Once the choice is given, the customer feeds in money. If the amount given is lesser than the price the machine indicates insufficient amount and exits. If the amount is greater than the price the machine re-bounces the remaining balance. The system consists of three actors USER, ADMIN, MACHINE. ADMIN keeps track of the sales. (DAILY and MONTHLY). Define classes for the scenario using inheritance and justify your answer.\*\* (10m)

- 2) Juliet was furious at the king of her heart, Romeo after a heated argument. Romeo and Juliet had their own private messenger where they could send messages to each other but the number of messages queued can be only up to a *certain length*. Romeo in order to win her back sent her messages containing hearts. But Juliet was not pacified and *simultaneously* she broke every heart that he sent by picking each at a time. When Juliet was in a state of not even opening his messages, the hearts queued up and reached the maximum size. Poor Romeo was unable to send anymore hearts. Finally, Juliet broke all the hearts that were queued up and tried to break more hearts but she couldn't do it as the queue was empty. Use appropriate java concepts and write a code to depict the scenario.\*\* (10m)
- 3) Write lines of code to access the inner class variable `class_count` from the outer class. (5m)

```
class COFFEE //outer class
{
 //write your code

 class JAVA// inner class
 {
 private int class_count=1;
 //write your code
 }
}
```