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**PRESIDENCY UNIVERSITY  
BENGALURU**

**SCHOOL OF INFORMATION SCIENCE  
END TERM EXAMINATION - JAN 2023**

**Semester :** Semester III - 2021

**Course Code :** CSA1005

**Course Name :** Sem III - CSA1005 - Object Oriented Programming using Java

**Program :** BCA / BCG / BCV / B.Sc-Data Science

**Date :** 9-JAN-2023

**Time :** 9.30AM - 12.30PM

**Max Marks :** 100

**Weightage :** 50%

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**Instructions:**

- (i) Read all questions carefully and answer accordingly.
  - (ii) Question paper consists of 3 parts.
  - (iii) Scientific and non-programmable calculator are permitted.
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**PART A**

**ANSWER ALL THE FOLLOWING QUESTIONS**

**10 X 2 = 20M**

1. Write down the rules for naming convention for a variable name in java. Give some examples of names which can't be variable.  
(CO1) [Knowledge]
2. What will be the output of the following piece of codes.  

```
x=1;  
while(x<5) {  
x*=2;  
System.out.println(x);  
}
```

  
(CO1) [Knowledge]
3. What is a class? How object can be created from a class. what operator is used to create an object.  
(CO1) [Knowledge]
4. What are the different ways to create a string in java. Distinguish it from StringBuffer  
(CO2) [Knowledge]
5. List out any 4 methods available in String class and their uses.  
(CO2) [Knowledge]
6. What is method overriding problem in inheritance? How can this problem be resolved?  
(CO2) [Knowledge]
7. What is polymorphism in java? Define Dynamic polymorphism  
(CO2) [Knowledge]

8. Which inheritance java doesn't support? How can java achieved it indirectly. (CO3) [Knowledge]
9. Explain the working principles of try and catch in Exception handling. (CO3) [Knowledge]
10. Disntuish join() with sleep() methods used in Java Multithreading? How can both be invoked? (CO4) [Knowledge]

## PART B

### ANSWER ALL THE FOLLOWING QUESTIONS

5 X 10 = 50M

11. Distinguish default with parameterized constructor with suitable example. (CO1) [Comprehension]
12. Explain method overriding with suitable example. Differentiate it with method overloading (CO2) [Comprehension]
13. Explain interface in java with syntax and example. Differntiate abstract class and interface with examples. (CO3) [Comprehension]
14. Draw the Exception class hierarchies. Distinguish Errors and Exceptions. List out the common methods available in Exception class with description. (CO3) [Comprehension]
15. What is Thread Synchronization? why we need it. How can a method be synchronized? Give example. Explain the producer-consumer problem with diagram (CO4) [Comprehension]

## PART C

### ANSWER ALL THE FOLLOWING QUESTIONS

2 X 15 = 30M

16. To book an air ticket during vacation, a passenger anil wanted to book tickets through online booking sites such as bookmyticket, airshare, and airjourney. Considering these three are the helper interfaces for anil's ticket booking and helps to provide suitable fare. Implement the above scenario by using Java's multiple implementation feature using interface and perform the following tasks.  
1. Declare 3 interfaces with different name with respect to bookmyticket, airshare, and airjourney  
2. Declare one abstract method in each the above interfaces which shows the price of a ticket.  
3. Create class to Implement all interfaces and corresponding abstract method.  
4. Create main class as passenger to access and download notes  
5. Test for anil's friend Sunil also. (CO3) [Application]
17. Create 3 threads to print facorial of 3 different numbers by extending Thread class.  
1. Use join method  
2. Without join method (CO4) [Application]

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