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**NATIONAL INSTITUTE OF TECHNOLOGY ANDHRA PRADESH**

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**III B.Tech I Semester MID Examination, September 2024**

**CS340-Object oriented programming (OE)**

**Date: 25-09-2024 Max. Marks: 30**

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| 1 | a) | Write a Java program to create a custom exception called UserException which displays exception as “Exception[<details>]” format. Now, create a class named ExceptionDemo with method **compute()** which takes an integer as parameter and throws the custom exception when the integer value is greater than 30 and print the integer value otherwise. | 3M |
| 1 | b) | Create a class named “Box” with instance variables *width*, *height, depth,* a parameterized constructor,and method volume() which computes the volume of Box and returns the same. Create two objects of class Box and assign their instances through the constructor and print their volumes. | 3M |
| 2 |  | Demonstrate how multiple inheritance is achieved using interfaces in Java with an example program. | 6M |
| 3 | a) | Create a generic interface MinMax, that declares the methods min() and max(), which are expected to return the minimum and maximum value of set of objects. | 3M |
| 3 | b) | Write a Java program to create a class called Employee with methods called work() and getSalary(). Create a subclass called HRManager that overrides the work() method and adds a new method called addEmployee(). | 3M |
| 4 |  | Write a Java program to create an abstract class Person with abstract methods eat() and exercise(). Create subclasses Athlete and LazyPerson that extend the Person class and implement the respective methods to describe how each person eats and exercises. | 6M |
| 5 | a) | Illustrate the usage of final keyword in preventing overriding and inheritance with an example program. | 3M |
|  | b) | Write a Java recursive method to calculate the nth Fibonacci number. | 3M |