Hall Ticket No | | | | | | | | | | | Question Paper Code: ACSD01

# INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)
Dundigal-500043, Hyderabad

B.Tech I SEMESTER END EXAMINATIONS (REGULAR) - FEBRUARY 2024
Regulation: BT23

## OBJECT ORIENTED PROGRAMMING

Time: 3 Hours (COMMON TO ALL BRANCHES) Max Marks: 60

**Answer ALL questions in Module I and II**
**Answer ONE out of two questions in Modules III, IV and V**
**All Questions Carry Equal Marks**
**All parts of the question must be answered in one place only**

### MODULE – I

1. (a) Discuss the characteristics of object oriented programming (OOP) and mention the advantages of OOPS approach over functional/procedural programming. [BL: Understand| CO: 1|Marks: 6]
   (b) Summarize about abstraction. Describe in detail the different layers of abstraction with suitable examples. [BL: Understand| CO: 1|Marks: 6]

### MODULE – II

2. (a) What is static data member? How are they used in static function? Describe, how a member of class be declared as static? [BL: Understand| CO: 2|Marks: 6]
   (b) Draw a class diagram for Book class with appropriate attributes such as title author, ISBN (International standard book number), publication year, availability status and methods display-Details(), checkOut()and returnBook() and depict the relationships among the objects. [BL: Apply| CO: 2|Marks: 6]

### MODULE – III

3. (a) Write the syntax of a destructor. Elucidate how it differs from the constructor with suitable example. [BL: Understand| CO: 3|Marks: 6]
   (b) Describe the procedure to overload unary and binary operators. Distinguish between friend function and friend class in OOP. [BL: Understand| CO: 3|Marks: 6]
4. (a) Explain explicit constructors, parameterized constructors, and multiple constructors with suitable example. [BL: Understand| CO: 4|Marks: 6]
   (b) Distinguish between
      i) Method overloading and method overriding
      ii) Dynamic constructor and copy constructor. [BL: Understand| CO: 4|Marks: 6]

### MODULE – IV

5. (a) Interpret the term virtual base class and its implementation in OOP. How it is used in function overriding? Explain with an example program. [BL: Understand| CO: 5|Marks: 6]
   (b) Elaborate about runtime polymorphism. How virtual functions can be used to implement the runtime polymorphism ? Justify with an example. [BL: Apply| CO: 5|Marks: 6].

6. (a) What is an multi-level inheritance? Explain with an example, how it can be implemented in OOP. [BL: Understand| CO: 5|Marks: 6]

   (b) Differentiate between

   i) is-a and has-a relationship

   ii) Static polymorphism and dynamic polymorphism. [BL: Understand| CO: 5|Marks: 6]

## MODULE – V

7. (a) Explain the primary file operations involved in file handling such as opening, reading, writing, and appending to files. [BL: Understand| CO: 6|Marks: 6]

   (b) Demonstrate the functions : ignore (), flush (), peek () and putback() with suitable example. [BL: Apply| CO: 6|Marks: 6]

8. (a) Summarize the concept of streams and stream classes. Differentiate byte stream and character stream with necessary examples [BL: Understand| CO: 6|Marks: 6]

   (b) Illustrate the functions seekg(), seekp(), tellg() and tellp() in the process of random access in a file. [BL: Apply| CO: 6|Marks: 6]

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