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Question Paper Code: AITB01



# INSTITUTE OF AERONAUTICAL ENGINEERING (Autonomous)

Dundigal, Hyderabad - 500 043

MODEL QUESTION PAPER-II

B.Tech III Semester End Examinations, November 2020

Regulations: IARE - R18

## OBJECT ORIENTED PROGRAMMING THROUGH PYTHON COMMON TO (CSE & IT)

Time: 3 hour

Maximum Marks: 70

**Answer ONE Question from each MODULE**

**All Questions Carry Equal Marks**

**All parts of the question must be answered in one place only**

### MODULE-I

- Explain about Bitwise operators and different membership operators in Python with examples. [7m]
  - Explain the for loop and the break statement and the continue statement in Python with examples. [7m]
- Explain about the unary operators and different relational operators in Python with examples. [7m]
  - Explain about encapsulation in Object Oriented Programming through Python with examples. [7m]

### MODULE-II

- List different types of inheritance and Explain each and every one with suitable examples. [7m]
  - Develop polymorphism as applied to object oriented programming. Explain polymorphism with examples. [7m]
- Develop polymorphism as applied to object oriented programming. Explain polymorphism with examples. [7m]
  - Explain about abstract class? Write differences between abstract classes and interfaces with examples. [7m]

### MODULE-III

- Explain in detail about the following methods (i) upper() (ii) lower() (iii) swapcase() (iv) title() [7m]
  - What is substring? Write a Python program to display all positions of a substring in a given main string [7m]

6. (a) Explain in detail about the following (i) Positional arguments (ii) Variable length arguments [7m]  
(b) Draw and explain the steps involved in Towers of Hanoi problem through recursion in Python. [7m]

#### MODULE-IV

7. (a) 7. a) What are run time exceptions in Python? Explain with suitable examples? [7m]  
(b) What are assertions? Explain about various types of the assertions with suitable examples? [7m]
8. (a) Can we keep the statements after finally block If the control is returning from the finally block itself? Explain with an example. [7m]  
(b) What are the rules in Python we need to follow when overriding a method that throws an exception? [7m]

#### MODULE-V

9. (a) Write the Python code for creating canvas and frames. [7m]  
(b) How to create a button widget in Python? Explain with an example. [7m]
10. (a) Distinguish between message widget and text widget in detail. [7m]  
(b) Demonstrate a Python GUI program that produces a window with the following widgets. [7m]  
(i) A button to retrieve the next value in that list (if there is one). This button is displayed if there is no next value in the list.  
(ii) A label to display the number of the item being displayed and the total number of items.

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**\*\*END OF EXAMINATION\*\***

## **COURSE OBJECTIVES:**

The course should enable the students to:

1	The fundamental concepts of object-oriented approach for solving real-time problems.
2	The basic and advanced constructs of Python programming for developing object oriented concepts.
3	The design concepts for developing user interface of real time applications.

## **COURSE OUTCOMES:**

After successful completion of the course, students should be able to:

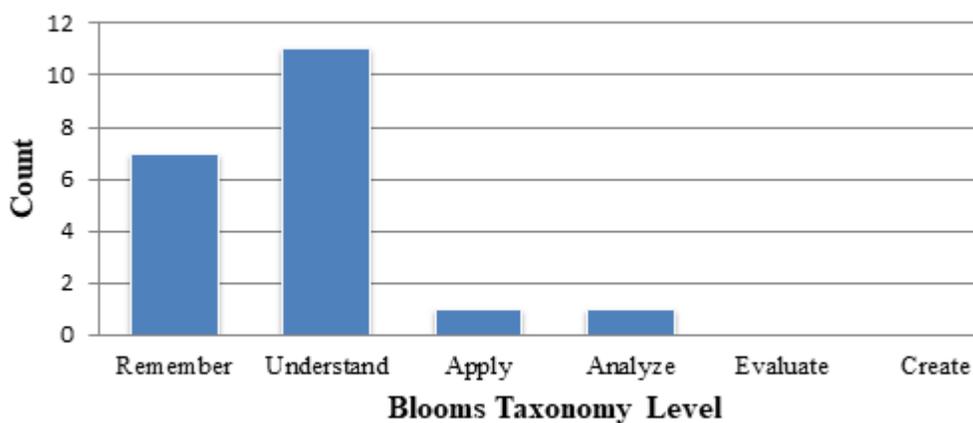
CO 1	Recall the basic programming constructs in implementing in Python.
CO 2	Identify classes, objects, members of a class and relationship among them for real world entities.
CO 3	Summarize the object-oriented concepts such as Abstraction, Encapsulation, Inheritance and Polymorphism in real time context.
CO 4	Demonstrate abstraction feature with the help of python class properties.
CO 5	Make use of polymorphism and inheritance concepts for achieving code reusability.
CO 6	Apply inbuilt strings for creating, performing basic operations and testing on text data.
CO 7	Develop user-defined functions for better modularity and a high degree of code reusability.
CO 8	Explain parameter-passing techniques while invoking recursive and non-recursive functions for solving problems.
CO 9	Analyze the Python exception mechanisms for handling errors and abnormal termination of program.
CO 10	Develop user-defined exceptions for handling un-interrupted execution of specific programs.
CO 11	Demonstrate Python GUI tool kit for designing static user interfaces.
CO 12	Make use of widgets, containers and frames for creating user interface of web application.

## MAPPING OF SEMESTER END EXAMINATION QUESTIONS TO COURSE OUTCOMES

Q.No		All Questions carry equal marks	Taxonomy	CO's	PO's
1	a	Explain about Bitwise operators and different membership operators in Python with examples.	Understand	CO 1	PO 1
	b	Explain the for loop and the break statement and the continue statement in Python with examples.	Understand	CO 1	PO 1
2	a	Explain about the unary operators and different relational operators in Python with examples.	Understand	CO 1	PO 1
	b	Explain about encapsulation in Object Oriented Programming through Python with examples.	Understand	CO 3	PO 1
3	a	List different types of inheritance and Explain each and every one with suitable examples.	Remember	CO 5	PO 1
	b	Why does the object-oriented philosophy need functions to be defined inside the classes? What could be the advantage?	Remember	CO 2	PO 1
4	a	Develop polymorphism as applied to object oriented programming. Explain polymorphism with examples.	Apply	CO 5	PO 1,2
	b	Explain about abstract class? Write differences between abstract classes and interfaces with examples.	Understand	CO 5	PO 1
5	a	Explain in detail about the following methods (i) upper() (ii) lower() (iii) swapcase() (iv) title()	Understand	CO 6	PO 1
	b	What is substring? Write a Python program to display all positions of a substring in a given main string.	Remember	CO 6	PO 1,2
6	a	Explain in detail about the following (i) Positional arguments (ii) Variable length arguments	Understand	CO 8	PO 1
	b	Draw and explain the steps involved in Towers of Hanoi problem through recursion in Python.	Understand	CO 8	PO 1
7	a	What are run time exceptions in Python? Explain with suitable examples?	Remember	CO 9	PO 1
	b	What are assertions? Explain about various types of the assertions with suitable examples?	Remember	CO 10	PO 1
8	a	Can we keep the statements after finally block If the control is returning from the finally block itself? Explain with an example.	Understand	CO 9	PO 1

	b	What are the rules in Python we need to follow when overriding a method that throws an exception?	Remember	CO 9	PO 1
9	a	Write the Python code for creating canvas and frames.	Understand	CO 12	PO 1
	b	How to create a button widget in Python? Explain with an example.	Remember	CO 12	PO 1
10	a	Distinguish between message widget and text widget in detail.	Analyze	CO 12	PO 2,4
	b	Demonstrate a Python GUI program that produces a window with the following widgets. (i) A button to retrieve the next value in that list (if there is one). This button is displayed if there is no next value in the list. (ii) A label to display the number of the item being displayed and the total number of items.	Understand	CO 11	PO 1

### KNOWLEDGE COMPETENCY LEVELS OF MODEL QUESTION PAPER



Signature of Course Coordinator  
A. Lakshmi, Assistant Professor

HOD,IT