INSTITUTE OF AERONAUTICAL ENGINEERING
(Autonomous)
Dundigal, Hyderabad - 500 043

MODEL QUESTION PAPER - II

B.Tech III Semester End Examinations, November - 2019
Regulations: R18
OBJECT ORIENTED PROGRAMMING THROUGH PYTHON
(Common to CSE & IT)

Time: 3 hours   **Max. Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the question must be answered in one place only

MODULE – I

1. a) Explain about Bitwise operators and different membership operators in Python with examples. **[7M]**
    b) Describe the for loop and the break statement and the continue statement in Python with examples. **[7M]**
2. a) Explain about the unary operators and different relational operators in Python with examples. **[7M]**
    b) Explain about encapsulation in Object Oriented Programming through Python with examples. **[7M]**

MODULE – II

3. a) List different types of inheritance and Explain each and every one with suitable examples. **[7M]**
    b) Why does the object-oriented philosophy need functions to be defined inside the classes? What could be the advantage? **[7M]**
4. a) Describe polymorphism as applied to OOP. Explain polymorphism with examples. **[7M]**
    b) Define abstract class? Write differences between abstract classes and interfaces with examples. **[7M]**

MODULE – III

5. a) Explain the following methods **[7M]**
       i) upper()
       ii) lower()
       iii) swapcase()
       iv) title()
    b) What is substring? Write a Python program to display all positions of a substring in a given main string. **[7M]**

| 6. | a) | Discuss about
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)	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 examples.	**[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 canvas and frames.	**[7M]**
	b)	How to create a button widget in Python? Explain.	**[7M]**
10.	a)	Distinguish message widget and text widget.	**[7M]**
	b)	Consider a Python GUI program that produces a window with the following widgets. 1. 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. 2. A label to display the number of the item being displayed and the total number of items.	**[7M]**

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COURSE OBJECTIVES:
The course should enable the students to:

I	Understand the fundamentals of Python programming concepts and its applications.
II	Understand the object-oriented concepts using Python in problem solving.
III	Apply string handling and function basics to solve real-time problems.
IV	Illustrate the method of solving errors using exception handling.
V	Design and implement programs using multi threading concepts

COURSE OUTCOMES (COs):

CO 1	Describe Features of Python, Data types, Operators, Input and output, Control Statements, Features of Object oriented programming system (OOPS).Classes and Objects, Encapsulation, Abstraction, Inheritance, Polymorphism.
CO 2	Determine Creating a class, The Self variable, Constructor, Types of Variable, Namespaces, Types of Methods, Inheritance and Polymorphism Constructors in inheritance, The super() method, Types of inheritance, Polymorphism, Abstract classes and Interfaces.
CO 3	Understand Creating strings and basic operations on strings, String testing methods, Defining a function, Calling a function, Returning multiple values from a function, Functions are first class objects, Formal and actual arguments, Positional arguments, Recursive functions.
CO 4	Explore the concept of Errors in a Python program, Exceptions, Exception handling, Types of exceptions, The Except block, The assert statement, user-defined exceptions
CO 5	Knowledge The Root window, Fonts and colors, Working with containers, Canvas, Frames, Widgets ,Button widget, Label Widget, Message widget, Text widget, Radio button Widget, Entry widget.

COURSE LEARNING OUTCOMES (CLOs):

AITB01.01	Describe the Features of Python, Data types.
AITB01.02	Summarize the concept of Operators, Input and output, Control Statements.
AITB01.03	Identify the features of Object Oriented Programming System (OOPS).
AITB01.04	Use the concept of Classes and Objects, Encapsulation.
AITB01.05	Describe Abstraction, Inheritance, and Polymorphism.
AITB01.06	Determine Creating a class, The Self variable.
AITB01.07	Understand types of variable, Namespaces.
AITB01.08	Determine types of Methods, Inheritance and Polymorphism.
AITB01.09	Use Constructors in inheritance, the super() method.
AITB01.10	Illustrate types of inheritance, Polymorphism, Abstract classes and Interfaces.
AITB01.11	Understand Creating strings and basic operations on strings.

AITB01.12	Analyze the concept of String testing methods, Defining a function.
AITB01.13	Illustrate Calling a function, Returning multiple values from a function.
AITB01.14	Contrast the Usage of Functions are first class objects, Formal and actual arguments,
AITB01.15	Define Positional arguments, Recursive functions.
AITB01.16	Discuss the concept of Errors in a Python program.
AITB01.17	Understand Exceptions, Exception handling.
AITB01.18	Summarize the concept of types of exceptions.
AITB01.19	Discuss the Except block, the assert statement.
AITB01.20	Understand the concept of user-defined exceptions.
AITB01.21	Knowledge about the Root window, Fonts and colors.
AITB01.22	Apply Working with containers, Canvas.
AITB01.23	Understand Widgets, Button widget, Label Widget.
AITB01.24	Implement Message widget, Text widget.
AITB01.25	Illustrate Radio button Widget, Entry widget.

MAPPING OF SEMESTER END EXAMINATION - COURSE OUTCOMES

SEE Question No			Course Learning Outcomes	Course Outcomes	Blooms Taxonomy Level
1	a	AITB01.02	Summarize the concept of Operators, Input and output, Control Statements.	CO 1	Understand
	b	AITB01.02	Summarize the concept of Operators, Input and output, Control Statements.	CO 1	Understand
2	a	AITB01.02	Summarize the concept of Operators, Input and output, Control Statements.	CO 1	Remember
	b	AITB01.04	Use the concept of Classes and Objects, Encapsulation.	CO 1	Understand
3	a	AITB01.08	Determine types of Methods, Inheritance and Polymorphism.	CO 2	Understand
	b	AITB01.06	Determine Creating a class, The Self variable.	CO 2	Remember
4	a	AITB01.10	Illustrate types of inheritance, Polymorphism, Abstract classes and Interfaces.	CO 2	Understand
	b	AITB01.10	Illustrate types of inheritance, Polymorphism, Abstract classes and Interfaces.	CO 2	Understand
5	a	AITB01.12	Analyze the concept of String testing methods, Defining a function.	CO 3	Understand
	b	AITB01.11	Understand Creating strings and basic operations on strings.	CO 3	Remember
6	a	AITB01.15	Define Positional arguments, Recursive functions.	CO 3	Understand
	b	AITB01.15	Define Positional arguments, Recursive functions.	CO 3	Understand
7	a	AITB01.18	Summarize the concept of types of exceptions.	CO 4	Understand

	b	AITB01.19	Discuss the Except block, the assert statement.	CO 4	Understand
8	a	AITB01.19	Discuss the Except block, the assert statement.	CO 4	Understand
	b	AITB01.18	Summarize the concept of types of exceptions.	CO 4	Understand
9	a	AITB01.22	Apply Working with containers, Canvas.	CO 5	Understand
	b	AITB01.23	Understand Widgets, Button widget, Label Widget.	CO 5	Remember
10	a	AITB01.24	Implement Message widget, Text widget.	CO 5	Understand
	b	AITB01.23	Understand Widgets, Button widget, Label Widget.	CO 5	Remember

Signature of Course Coordinator   **HOD, IT**