Question Paper Code : 54009

B.E./B.Tech. DEGREE EXAMINATION, JANUARY 2018

First Semester

Civil Engineering

GE 8151 – PROBLEM SOLVING AND PYTHON PROGRAMMING

(Common to All Branches)

(Regulations 2017)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions.

PART – A   (10×2=20 Marks)

1. What is an algorithm ?

2. Write an algorithm to accept two numbers, compute the sum and print the result.

3. Name the four types of scalar objects Python has.

4. What is a tuple ? How literals of type tuple are written ? Give example.

5. Write a Python program to accept two numbers, multiply them and print the result.

6. Write a Python program to accept two numbers, find the greatest and print the result.

7. What is a list ? How lists differ from tuples ?

8. How to slice a list in Python ?

9. Write a Python script to display the current date and time.
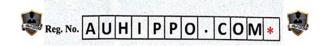
10. Write a note on modular design.

PART – B   (5×16=80 Marks)

11. a) i) Draw a flow chart to accept three distinct numbers, find the greatest and print the result.   (8)

   ii) Draw a flow chart to find the sum of the series $1 + 2 + 3 + 4 + 5 + \ldots\ldots + 100$.   (8)

   (OR)

   b) Outline the Towers of Hanoi problem. Suggest a solution to the Towers of Hanoi problem with relevant diagrams.   (16)

12. a) i) What is a numeric literal ? Give examples. **(4)**

    ii) Appraise the arithmetic operators in Python with an example. **(12)**

(OR)

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  b) i) Outline the operator precedence of arithmetic operators in Python. **(6)**

    ii) Write a Python program to exchange the value of two variables. **(4)**

    iii) Write a Python program using function to find the sum of first 'n' even numbers and print the result. **(6)**

13. a) i) Appraise with an example nested if and elif header in Python. **(6)**

    ii) Explain with an example while loop, break statement and continue statement in Python. **(10)**

(OR)

  b) i) Write a Python program to find the factorial of a given number without recursion and with recursion. **(8)**

    ii) Write a Python program to generate first 'N' Fibonacci numbers. **(8)**

    Note : The Fibonacci numbers are 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, ... where each number is the sum of the preceding two.

14. a) i) What is a dictionary in Python ? Give example. **(4)**

    ii) Appraise the operations for dynamically manipulating dictionaries. **(12)**

(OR)

  b) i) Write a Python program to perform linear search on a list. **(8)**

    ii) Write a Python program to store 'n' numbers in a list and sort the list using selection sort. **(8)**

15. a) Tabulate the different modes for opening a file and explain the same. **(16)**

(OR)

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  b) i) Appraise the use of try block and except block in Python with syntax. **(6)**

    ii) Explain with an example exceptions with arguments in Python. **(10)**

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Question Paper Code : 25109

B.E./B.Tech. DEGREE EXAMINATION, DECEMBER/JANUARY 2019.

First Semester

Civil Engineering

GE 8151 — PROBLEM SOLVING AND PYTHON PROGRAMMING

(Common to all Branches)

(Regulations 2017)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   Distinguish between algorithm and program.

2.   Write an algorithm to find the minimum number in a given list of numbers.

3.   What are keywords? Give examples.

4.   State the reasons to divide programs into functions.

5.   Present the flow of execution for a while statement.

6.   Define recursion with an example.

7.   Relate strings and lists.

8.   Give a function that can take a value and return the first key mapping to that value in a dictionary.

9.   What is a module? Give example.

10. Find the syntax error in the code given :

     while True print ('Hello world')

PART B — (5 × 16 = 80 marks)

11. (a) (i) Discuss about the building blocks of algorithms. (8)

        (ii) Write a recursive algorithm to solve towers of Hanoi problem. (8)

Or

    (b) (i) Identify the simple strategies for developing an algorithm. (8)

        (ii) Write an algorithm to insert a card into a list of sorted cards. (8)

12. (a) (i) Sketch the structures of interpreter and compiler. Detail the differences between them. Explain how python works in interactive mode and script mode with examples. (2 + 2 + 4)

        (ii) Summarize the precedence of mathematical operators in python. (8)

Or

    (b) (i) Explain the syntax and structure of user defined functions in Python with examples. Also discuss about parameter passing in functions. (12)

        (ii) Write a python function to swap the values of two variables. (4)

13. (a) List the three types of conditional statements and explain them. (16)

Or

    (b) (i) Python strings are immutable, Justify with an example. (8)

        (ii) Write a python code to perform binary search. Trace it with an example of your choice. (8)

14. (a) (i) Discuss the different options to traverse a list. (8)

        (ii) Demonstrate the working of +, * and slice operators in python. (8)

Or

    (b) (i) Compare and contrast tuples and lists in Python. (4)

        (ii) Write a script in Python to sort *n* numbers using selection sort. (12)

15. (a) (i) Explain the commands used to read and write into a file with examples. (8)

        (ii) Discuss about the use of format operator in file processing. (8)

Or

    (b) Describe how exceptions are handled in Python with necessary examples. (16)

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Question Paper Code : 80173

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2019.

First Semester

Civil Engineering

GE 8151 — PROBLEM SOLVING AND PYTHON PROGRAMMING

(Common to all Branches)

(Regulation 2017)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List the symbols used in drawing the flowchart.

2. Give the Python code to find the minimum among the list of 10 numbers.

3. Outline the logic to swap the contents of two identifiers without using third variable.

4. State about Logical operators available in python language with example.

5. Comment with an example on the use of local and global variable with the same identifier name.

6. Define recursive function.

7. How to create a list in python? Illustrate the use of negative indexing of list with example.

8. Demonstrate with simple code to draw the histogram in python.

9. Categorise the different types of errors arises during programming. Interpret the following python code

    >>> import os

    >>> cwd = os.getcwd( )

    >>> print cwd

    /home/dinsdale

10. What is command line argument?

PART B — (5 × 16 = 80 marks)

11. (a) Mention the different types of iterative structure allowed in Python. Explain the use of continue and break statements with an example. (16)

Or

(b) (i) What is an algorithm? Summarise the characteristics of a good algorithm. (8)

(ii) Outline the algorithm for displaying the first n odd numbers. (8)

12. (a) Describe about the concept of precedence and associativity of operators with example. (16)

Or

(b) (i) Mention the list of keywords available in Python. Compare it with variable name. (8)

(ii) What are statements? How are they constructed from variable and expressions in Python? (8)

13. (a) (i) Analyse string slicing. Illustrate how it is done in Python with example. (8)

(ii) Write a Python code to search a string in the given list. (8)

Or

(b) (i) Outline about function definition and call with example. (10)

(ii) Why are functions needed? (6)

14. (a) Demonstrate with code the various operations that can be performed on tuples. (16)

Or

(b) Outline the algorithm and write a Python program to sort the numbers in ascending order using merge sort. (16)

15. (a) Explain about the file reading and writing operations using format operator with Python code. (16)

Or

(b) (i) Explain about how exceptions are handled with example. (8)

(ii) Design a Python code to count the number of words in a Python file. (8)

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