SET - II

B.E. / B.Tech. DEGREE PRACTICAL EXAMINATION, DECEMBER 2017

GE8161: PROBLEM SOLVING AND PYTHON PROGRAMMING LAB

Time: Three Hours **Maximum: 100 Marks**

1. a. Code a Python program to accept a number, find the sum of the digits of the number and print the result. (50)
   b. Code a Python program to perform linear search. (50)

2. a. Code a Python program to accept two numbers m and n where m > n, find the quotient, remainder and print the result. (40)
   b. Code a Python program to perform binary search. (60)

3. a. Code a Python Program that accepts a character string and character as argument, and deletes all occurrences of this character in the string and display the result. (40)
   b. Code a Python program to perform merge sort. (60)

4. a. Code a Python program to find the factorial of a given number using recursion. (40)
   b. Code a Python program to accept 'n' names, sort names in alphabetic order and print the result. (60)

5. a. Code a Python program to compute the GCD of two numbers. (50)

   b. Code a Python program to perform linear search. (50)

6. a. Code a Python program to perform computation of sin (x) as given below: (50)

$$\sin x = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \frac{x^9}{9!} \cdots\cdots\cdots\cdots N\ terms$$

   b. Code a Python program to accept two matrices, multiply the two matrices and print the result. (50)

7. a. Code a Python program to compute the sum of the series: (40)

$$1 + X + X^2 + X^3 + \cdots\cdots\cdots + X^n$$

   b. Code a Python program to perform binary search. (60)

8. a. Code a Python program to perform computation of cos (x) as given below: (60)

$$\cos x = x - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!} + \frac{x^8}{8!} \cdots\cdots\cdots\cdots N\ terms$$

   b. Code a Python program to find the maximum of a list of numbers. (40)

9. a. Code a Python program to accept a string, count the number of vowels in the string and print the result. (50)

b. Code a Python program to sort 'n' numbers using selection sort. (50)

10. a. Code a Python program to accept a string, reverse the string, check whether the string is a palindrome and print the result. (50)

Note: For example consider the string 'MALAYALAM' as an example for palindrome; when you reverse the string you get back the original string 'MALAYALAM'.

b. Code a Python program to sort 'n' numbers using insertion sort. (50)

11. a. Code a Python program to find the sum of the first 'n' even numbers and print the result. (40)

b. Code a Python program to accept 'n' names, sort names in alphabetic order and print the result. (60)

12. a. Code a Python program to find the sum of the first 'n' odd numbers and print the result. (40)

    b. Code a Python program to accept two matrices, multiply the two matrices and print the result. (60)

13. a. Code a Python program to find the sum of the first 'n' prime numbers and print the result. (40)

    b. Code a Python program to perform merge sort. (60)

14. a. Code a Python program to accept a string, reverse the string and print the result. (40)

    b. Code a Python program to accept two matrices, multiply the two matrices and print the result. (60)

15. a. Code a Python program to store 'n' numbers in a list and sort the list using selection sort. (50)

    b. Code a Python program to perform linear search on a list. (50)

16. a. Code a Python program to merge two lists. (50)

b. Code a Python program to remove duplicates from a list. (50)

17. a. Code a Python program to accept a square matrix, compute the sum of the diagonal elements and print the result. (50)

b. Code a Python program to perform linear search on a list. (50)

18. a. Code a Python program to find the 1^{st}, 2^{nd} and 2rd largest element in a list. (50)

b. Code a Python program to perform insertion sort. (50)

19. a. Code a Python program that reads a positive integer and then prints out all the positive divisors of that integer. (40)

Example: The positive divisors of positive integer 36 are 36, 18, 12, 9, 6, 4, 3, 2 and 1

b. Code a Python program to accept 'n' names, sort names in alphabetic order and print the result. (60)

20. a. Code a Python program to print the first 'N' prime numbers. (50)

b. Code a Python program to accept a matrix, find the transpose of the matrix and print the result. (50)

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