

BE Metallurgical and Material Engineering
First Year First Semester Examination, 2019 (Old)
Computer Programming

Time – 3 Hours

Full Marks – 100

Answer any five questions

Answer all parts of a question in contiguous pages

- 1.
- a. Write a C program which determines whether a given string is palindrome or not. Do not use any string library function.
 - b. Write a C program which arranges a given list of number in ascending order.
 - c. Draw a flowchart to find out whether a given number is prime or not.
- 6+8+6=20
- 2.
- a. Write C program to find the sum of digits of a given number.
 - b. Write a C program which accepts 100 integers from user and counts the number of positive and negative numbers entered.
 - c. Write a C program which determines whether two given strings are equal or not. Do not use any string library function.
- 6+8+6=20
- 3.
- a. Write a C program which accepts the number obtained by a student and prints the grade obtained according to the following rule.

≥ 80	-> 'A'
≥ 70 & < 80	-> 'B'
≥ 60 & < 70	-> 'C'
≥ 50 & < 60	-> 'D'
 - b. Write a C program which accepts a string from user and counts the number of vowel characters in it.
 - c. Draw a flowchart to find the minimum of a given set of n numbers.
- 8+7+5=20
- 4.
- a. Write a program which accepts two 3x3 matrices from user and prints sum of the two matrices.
 - b. Write a C program to find out sum of the following series.
 $S=1.2+2.3+3.4+4.5+ \dots +n.(n+1)$
 - c. Write a C program that prints the following pattern

1					
1	2				
1	2	3			
1	2	3	4		
1	2	3	4	5	
- 10+5+5=20

[Turn over

- 5.
- Write a C program which accepts a string from user and prints the reverse of the string without using string library functions.
 - Write a C function which returns the factorial of an integer passed as argument.
 - Write a C function which accepts two integer values x and y and returns the value x^y .
- 8+6+6=20
- 6.
- Write a C program to determine whether a given number is an Armstrong number or not. If sum of cubes of each digit of the number is equal to the number itself, then the number is called an Armstrong number. For example, $153=1^3+5^3+3^3$
 - Write a program to find the sum of the series $1 + a/1! + a^2/2! + a^3/3! + \dots + a^n/n!$, where values of a and n are provided as input by the user.
 - Draw a flowchart to find out product of digits of a given number.
- 10+6+4=20
- 7.
- Write a C program which accepts marks obtained by five students in five subjects. Print the total marks obtained by all the students. Also determine the highest total marks.
 - Write a C program which accepts elements of a 3×3 matrix from user and determines whether it is symmetric or not. A matrix is symmetric if it is equal to its transpose.
- 10+10=20

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