

1E2406

Roll No. _____

Total No of Pages: 4

1E2406

B. Tech. I - Sem. (Main/Back) Exam., Dec. 2019
1FY1 – 06 Programming for Problem Solving

Time: 2 Hours

Maximum Marks: 80
Min. Passing Marks: 28

Instructions to Candidates:

Attempt all five questions from Part A, four questions out of six questions from Part B and two questions out of three from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used /calculated must be stated clearly.

*Use of following supporting material is permitted during examination.
(Mentioned in form No. 205)*

1. NIL

2. NIL

PART – A

(Answer should be given up to 25 words only)

[5×2=10]

All questions are compulsory

Q.1 Draw the block diagram of a Computer. Explain its components. Differentiate between primary & secondary storage.

Q.2 Draw a flowchart to find the maximum among the three numbers.

Q.3 What is an algorithm? Write an algorithm to print even numbers from 2 to 100.

[1E2406]

Page 1 of 4

[8740]

Q.4 Write the format of the following functions -

- (a) fseek
- (b) fopen
- (c) getch
- (d) getchar

Q.5 Differentiate between Array, Structures & Unions.

PART – B

(Analytical/Problem solving questions)

[4×10=40]

Attempt any four questions

Q.1 (a) Write a program in C to print inverted half pyramid -

```
* * * * *
* * * *
* * *
* *
*
```

(b) Write a program in C to check Armstrong number of n digits.

Q.2 (a) What will be the output of the following "C" code?

```
#include

void main () {

int i = -1, j = -1, k = 0, l = 2, m;

m = i++ &&j++ &&k++ || l++;

printf ("%d%d%d%d%d", i,j,k,l,m);

}
```

- (b) Explain the terms Identifiers and Data Types in C. Explain the rules of Identifier declaration in C language. List all the Data Types of C with their storage size and storage format.

Q.3 Write a Pseudo Code to Multiply $2[3 \times 3]$ Matrices and Transpose the output of Multiplication.

Q.4 Write a program to swap two values using functions, use 2 cases -

- (a) call by value and
- (b) call by reference

Q.5 Explain the following conditional statements with proper syntax and example -

- (a) If- else statement
- (b) Switch Case
- (c) While Loop
- (d) Do-While Loop

Q.6 Solve the following -

- (a) Convert 253.64 from base 10 to base 8
- (b) The given hexadecimal number (1E.53) base 16 is equivalent to (____) base 8
- (c) Convert the binary number $(01011.1011)_2$ into decimal
- (d) Find r 's and $(r-1)$'s complement of 5308
- (e) Solve the following $(10110.01)_2 - (11010.10)_2$, using $(r-1)$'s complement

PART – C

(Descriptive/Analytical/Problem Solving/Design Questions)

[2×15=30]

Attempt any two questions

Q.1 Write a C program to find the sum of the series –

$$S = 1 + \frac{x}{1!} + \frac{x^2}{2!} + \frac{x^3}{3!} + \frac{x^n}{n!}$$

Q.2 Programming on structures/pointers –

(a) Define a structure data type called time_struct containing 3 members called hour, minute and second. Develop a program that would assign values to the individual members and display the time in the form 16:40:30

(b) Write a program in C to Swap Three (3) numbers using pointers

Q.3 Explain the concept of File handling in C language. Write a Program in C language to copy the data from source file to destination file and display the same on console.

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