Subject Code: R13205/R13 **Set No - 1**

I B. Tech II Semester Supplementary Examinations April/May - 2017
COMPUTER PROGRAMMING
(Com. to ECE, EEE, EIE, BOT, E.Com.E., AGE)

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

Question Paper Consists of **Part-A** and **Part-B**
Answering the question in **Part-A** is Compulsory,
Three Questions should be answered from **Part-B**

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PART-A

1. (a) What is the value of the 'C' expression: *9 – 9 / 5 * 5 % 3 > 9 % 5 % 3*?

   (b) What is the output of the following fragment of 'C' code?

   static int a[3][2][4] = { {2, 1, 4, 7, 2, 5, 8, 9}, {8, 6, 4, 4, 2, 5, 3, 5}, {2, 4, 5, 6, 1, 9, 8, 7}};

   printf("%d", a[2][1][0]);

   (c) Consider a recursive '*C*' function to compute n Fibonacci numbers of the following. How many times f is called (including the first call) for an evaluation of $f(7)$?

$$f(n)=\begin{cases}1, if\ \ n=0\\1, if\ \ n=1\\f(n-1)+f(n-2)\end{cases}$$

   (d) What is the output of the following fragment of 'C' code?

   *int a[] = {10, 20, 30, 40, 50}, *p; p = a + 3; printf("%d", p[-2]);*

   (e) What is a self-referential structure? Give an example.

   (f) What is the difference between *fscanf() and fprintf()*? Give an example. (4+4+4+4+3+3)

PART-B

2. (a) Draw the flow chart to find the first '**N**' terms of Fibonacci series.

   (b) Determine the value of the following 'C' expressions:

   (i) *int i, j, k; i = j = k = 1; i = -j-- - --k; printf("%d", i);*

   (ii) *int x = 5, z; float y; z = x + +; y = + + x; printf("%d %d ", x, y, z);*

   (iii) *int x = 5, x ? y = 0 : y = 1; printf("%d", y);* (8+8)

3. (a) Describe the various control structures available in 'C'.

   (b) Write a program to find whether the given no is amstrong or not.

   (c) Explain the three dimensional arrays with an example. (6+6+4)

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4. (a) Write a recursive '*C*' function to solve the problem of *Towers of Hanoi*. Trace the '*C*' function for an optimal execution time of the *Towers of Hanoi* problem with $n = 8$ discs.
   (b) Write a 'C' program to multiply a given two long integer numbers using recursion. (10+6)

5. (a) Explain about different bit-wise operators with examples.
   (b) What are command line arguments? Explain with a complete 'C' program.
   (c) What does the following fragment of C program print?
   *char c[] = "KSDAPCSE", *p; p = c; printf("%s", p + p[3] – p[1]);* (7+6+3)

6. (a) Compare structure and union in 'C' with suitable examples.
   (b) What is the output of the following 'C' program?
   void main() { struct { a : 5; b : 1; c : 15; }a; printf("%d", sizeof(a)); }
   (c) Explain the passing of structure as arguments with suitable 'C' program. (5+5+6)

7. (a) What is a file pointer? Explain the steps for sequential file operations.
   (b) Explain the difference between the Standard I/O and formatted I/O with suitable examples.
   (c) Compare *gets()* and *fgets()* with an example. (5+6+5)