SEM 2 – 3 (RC 16 – 17)

F.E. (Semester – II) (RC 2016-2017) Examination, Nov./Dec. 2017
PROGRAMMING LANGUAGES

Duration : 3 Hours | Max. Marks : 100

Instructions : *1) Answer **any 5** questions by selecting **two** questions from Part – **A**, **two** questions from Part – **B** and **one** question from Part – **C**.*
*2) Make suitable assumptions **if required**.*

PART – A

Answer **any two** questions from the following :

1. a) What is the importance of algorithm in computer science ? How does an algorithm differ from a program. 5
   b) Differentiate between iteration and recursion with help of an example. 5
   c) What is a Data type ? Describe the different data types supported by C language. 4
   d) Write a menu driven C program to display the days of the week based on user's choice. 6

2. a) List and explain the various components of a flowchart. 4
   b) Devise an algorithm and draw a flowchart for generating and printing the first n terms of Fibonacci series where n > = 1. 6
   c) Write a C program to find whether given number is a prime or not. 6
   d) Pick out errors if any, otherwise write the output : 4

```
#include<stdio.h>
#include<conio.h>
void main( )
{
inti, j;
for(i=1;i<=3;i++)
{
for(j=1;j<=6;j++)
{
if(i==j)
continue;
```

P.T.O.

```
printf("%d %d\n",i,j);
if(j>i)
break;
}
}
getch();
}
```

3. a) What do you mean by parameter passing ? Explain two techniques of parameter passing. 5
   b) Devise an algorithm and draw a flowchart to find the reversal of a number. 5
   c) Write a C program to create a user defined function cube that will calculate the cube of a number. The cube of the number should be calculated using library function. 5
   d) Explain the following with examples : 5
      i) Function declaration and prototypes
      ii) Function definition and function call.

PART – B

Answer **any two** questions from the following :

4. a) What is an 2D array ? Explain with examples compile time and run time initialization of 2D array. 4
   b) Write a C program to delete an element in an array. 4
   c) Write a C program to display the matrix multiplication for two matrices. 8
   d) Write a program to accept marks of 'n' students in an array and compute the average by passing the array to the function. 4

5. a) Explain the following String handling function. Demonstrate the use of each with the help of a C program. 5
      i) strrev()
      ii) strcmp()
      iii) strlen()
      iv) strstr()
      v) strcat().
   b) Write a C program to add two numbers using pointers. 5
   c) Define a structure giving an example. Can members of two different structures within the same program have same names. Justify your answer. 5
   d) Write a C program using a structure to accept the details of n employees with fields such as employee id, name, qualification and salary. Print the details of the employees having five digit salary. 5

6. a) Explain the following functions with respect to files : 4
   i) getc()
   ii) putc()
   iii) getw()
   iv) putw().

   b) Explain Dynamic Memory Allocation. 4

   c) Write a program to read content from a file and display the content to the user. 6

   d) Write a C program to concatenate contents of 2 files and store the output in the thirdfile. 6

PART – C

Answer **any one** question from the following :

7. a) What is top down design ? Enlist and explain all the factors that have to be taken into consideration before implementation of the above design. 5

   b) Determine the value of the following expression. Show each step of the computation clearly. 5

   Q = (i-3*j)%(c+2*d)/(x-y)

   [assume final Q as int and int i = 8, int j = 5,char c= 'c', char d='d', float x = 0.005, float y = – 0.001]

   c) Trace the piece of code. Note down errors if any 4

```
#include<stdio.h>
#include<conio.h>
void main()
{
float *p1, i = 25.50;
float *p2;
p1=&i;
p2=&i;
printf("Content of pointer p1 : %f\n\n",*p1);
printf("Content of pointer p2 : %f\n\n",*p2);
getch();
}
```

   d) Write a C program to illustrate the comparison of structure variables. 6

8. a) Explain the following with respect to algorithms : 4
   i) correctness
   ii) efficiency.

   b) Pick out errors if any, otherwise write the output 5

```
#include<stdio.h>
#include<conio.h>
void main()
{
int x = – 2;
while(x<3) {
if (x<0)
printf("–ve");
else if (x>0)
printf("+ve");
else
printf("Zero");
x++;
}
getch();
}
```

   c) Add the necessary statements for the program to print out 35 using pointers. 2

```
#include<stdio.h>
    void main()
    {
    int j,*ptr;
    *ptr=35;
    printf("%d", j);
    }
```

   d) Write a program to demonstrate passing an array to a function using pointers. 4

   e) Explain arrays of structures with help of an example. 5