B. Sc. (Bioinformatics) (Sem. I) Examination

November / December – 2017

BI-303 : Programming in C

(New Course)

Time : $2\frac{1}{2}$ Hours]   [Total Marks : **70**

Instructions : (1) All questions are compulsory.

(2) The right side figure indicates total marks of the question.

1   Attempt the following :   **14**

(a) Answer the following short questions: (all compulsory)   **4**

(1) Define the term algorithm.

(2) What is flowchart?

(3) Which symbol is used to represents process in flowchart?

(4) What is logic in programming language?

(b) Answer any **one** of the following question.   **2**

(1) Explain pseudo code in brief.

(2) Write down the advantages of flowchart and algorithm.

(c) Answer any **one** of the following question :   **3**

(1) Draw the flowchart to find out maximum number out of three numbers.

(2) Write an algorithm to add three numbers entered by the user.

(d) Answer any **one** of the following question :   **5**

(1) Write a short note on algorithm.

(2) Explain flowchart with its symbol and suitable example.

2 (a) Answer the following short questions (all compulsory) **4**

(1) Who developed C language ?

(2) What is the range of float data type?

(3) How many keywords are there in C language?

(4) What is the answer of the following code?

```
#include<stdio.h>
void main()
{
        int letter = 'A';
        printf("%d", letter);
}
```

(b) Answer any **one** of the following question :   **2**

(1) Explain history of C language.

(2) List out naming rules for variable.

(c) Answer any **one** of the following question :   **3**

(1) Draw and explain structure of C program.

(2) Explain printf() and scanf() function with example.

(d) Answer any **one** of the following question :   **5**

(1) What is token ? List out tokens available in C and explain in detail.

(2) Write a short note on operators available in C.

3 (a) Answer the following short questions : (all compulsory) **4**

 (1) What is the result of variable i after executing following code?

```
#include<stdio.h>
#define a 3+3
void main()
{
    int i;
    i = a * a * a;
    printf("%d",i);
}
```

 (2) What will be the output of the following program?

```
#include<stdio.h>
void main()
{
    while(1)
    {
        printf("Hello World");
    }
}
```

 (3) What is the answer of variable X after executing following code?

```
X = 2;
++X + X++;
printf ("%d", X);
```

 (4) Which loop is called entry control loop?

(b) Answer any **one** of the following question. 2

(1) Differentiate global and local variable.

(2) Explain break statement with example.

(c) Answer any **one** of the following question : 3

(1) Explain call by reference with suitable example.

(2) Explain following functions with suitable example.

(i) clrscr()

(ii) getch()

(iii) getc()

(iv) putc()

(d) Answer any **one** of the following question : 5

(1) Write a short note on storage classes in C.

(2) Write a C program to find out factorial of given number using recursion.

4 (a) Answer the following short questions: (all compulsory) 4

(1) Index of array elements starts with _____

(2) State the difference between structure and union.

(3) Structure and union is the user-define data types. True or False?

(4) Number of bytes in memory taken by the below union block is ?

union temp
{
    int k;
    char c;
};

(b) Answer a any **one** of the following question : **2**

    (1) What is array? How to declare array? Explain with syntax and example.

    (2) Differentiate structure and union.

(c) Answer any **one** of the following question : **3**

    (1) Write a program to find out maximum out of 5 array elements entered by the user.

    (2) Explain array within structure with example.

(d) Answer any **one** of the following question : **5**

    (1) Write a short note on structure and union.

    (2) Write a program to calculate net salary of three employees and display it on screen using following structure :

```
struct emp,
{
        int eno;              // employee number
        char ename[20];       employee name
        float basic, da, hra, pt, gross_sal, net_sal;
} e[3];
da [20% of basic], hra [35% of basic], pt [15% of basic]
gross_sal = basic + da + hra
net_sal = gross_sal - pt ;
```

5 (a) Answer the following short questions: (all compulsory) **4**

    (1) What will be the output of the following program?

```
#include<stdio.h>
void main()
{
        int *ptr, a= 10;
        ptr = &a;
        * ptr + = 1;
        printf("%d", *Ptr) ;
}
```

(2) Which function is used to create and open a file in C?

(3) Which functions are used to allocate the memory at run-time in C?

(4) What will be the output of the following program?

```
#include <stdio.h>
void main()
{
        int i=3, *j,**k;
        j = &i;
        k = &j;
        printf("%d",**k);
}
```

(b) Answer any **one** of the following question : **2**

(1) Write down advantages of pointer.

(2) List out the file modes available to open a file in C?

(c) Answer any **one** of the following question : **3**

(1) What is pointer? How to declare pointer? Explain with syntax and example.

(2) Explain following functions with suitable example.

(i) fopen()

(ii) fclose()

(iii) fprintf()

(iv) fscanf()

(d) Answer any **one** of the following question :　　　**5**

    (1) Write a program to create a file "server.txt" and write a following data into it.

        "This is file server 2.0

        It stores the data up to 1 TB

        The transfer rate of file is faster".

        Also read the data from a file and print it on a screen, if file not exist print error message.

    (2) Explain calloc(), malloc(), realloc() and free() functions with suitable example.

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