M3-R4: PROGRAMMING & PROBLEM SOLVING THROUGH 'C' LANGUAGE

NOTE:

1. There are **TWO PARTS** in this Module/Paper. **PART ONE** contains **FOUR** questions and **PART TWO** contains **FIVE** questions.

2. **PART ONE** is to be answered in the **OMR ANSWER SHEET** only, supplied with the question paper, as per the instructions contained therein. **PART ONE** is **NOT** to be answered in the answer book.

3. Maximum time allotted for **PART ONE** is **ONE HOUR**. Answer book for **PART TWO** will be supplied at the table when the answer sheet for **PART ONE** is returned. However, candidates, who complete **PART ONE** earlier than one hour, can collect the answer book for **PART TWO** immediately after handing over the answer sheet for **PART ONE**.

TOTAL TIME: 3 HOURS **TOTAL MARKS: 100**

(PART ONE – 40; PART TWO – 60)

PART ONE
(Answer all the questions)

1. Each question below gives a multiple choice of answers. Choose the most appropriate one and enter in the "OMR" answer sheet supplied with the question paper, following instructions therein. (1x10)

1.1 What will be output if you will compile and execute the following c code?

```
#include<stdio.h>
int main(){ int a=5;  float b;
printf("%d",sizeof(++a+b));   printf(" %d",a);  return 0;}
```

A) 2 6
B) 4 6
C) 2 5
D) 4 5

1.2 What will be output if you will compile and execute the following C code?

```
#include<stdio.h>
int main(){
 int check=2;
 switch(check){
 case 1: printf("D.W.Steyn");
 case 2: printf(" M.G.Johnson");
 case 3: printf(" Mohammad Asif");
 default: printf(" M.Muralidaran");
}
 return 0;
}
```

A) M.G.Johnson
B) M.Muralidaran
C) M.G.Johnson Mohammad Asif M.Muralidaran
D) Compilation error

1.3 How many times "IndiaBIX" is get printed?

```
int main()
{
    int x;
    for(x=-1; x<=10; x++)
    {
        if(x < 5)
            continue;
        else
            break;
        printf("IndiaBIX");
    }
    return 0;
}
```

A) Infinite times
B) 11 times
C) 0 times
D) 10 times

1.4 What do the following declarations signify? void *cmp();
A) cmp is a pointer to an void type.
B) cmp is a void type pointer variable.
C) cmp is a function that return a void pointer.
D) cmp function returns nothing.

1.5 When following piece of code is executed, what output will be generated?

```
#include<stdio.h>
int main(){
char arr[7]="Network";
printf("%s", arr);
return 0;
}
```

A) Network
B) N
C) Garbage value
D) Compilation error

1.6 The result of a Relational operation is always
A) either True or False
B) is less than or is more than
C) is equal or less or more
D) All of the above

1.7 The keyword used to transfer control from a function back to the calling function is
A) switch
B) goto
C) go back
D) return

1.8 What is the similarity between a structure, union and enumeration?
A) All of them let you define new values
B) All of them let you define new data types
C) All of them let you define new pointers
D) All of them let you define new structures

1.9 How many times is a do while loop guaranteed to loop?
A) 0
B) Infinitely
C) 1
D) Variable

1.10 Which of the following can not be used as identifiers?
A) Letters
B) Digits
C) Underscores
D) Spaces

2. Each statement below is either TRUE or FALSE. Choose the most appropriate one and ENTER in the "OMR" answer sheet supplied with the question paper, following instructions therein. (1x10)

2.1 NULL pointer points the base address of segment.

2.2 Comma operator is used for separation.

2.3 The size of a structure can be determined by both size of variable name and size of (struct tag).

2.4 While loop is post tested loop.

2.5 All of the following are valid expressions in 'C'.

a = 2 + (b = 5);

a = b = c = 5;

a = 11 % 3

2.6 A variable is a string that varies during program execution.

2.7 void (*ptr)() is a pointer to a function which receives nothing and returns nothing.

2.8 Calling a uninitialized variable will provide zero value.

2.9 'C' language can not be used for database manipulation.

2.10 In 'C', if you pass an array as an argument to a function, value of elements in array actually gets passed?

3. Match words and phrases in column X with the closest related meaning/ word(s)/phrase(s) in column Y. Enter your selection in the "OMR" answer sheet supplied with the question paper, following instructions therein. (1x10)

X		Y	
3.1	size of void pointer in byte	**A.**	p is pointer to an array of integer
3.2	p[i] can be written as	**B.**	Unending loop if no break statement inside the body
3.3	Union	**C.**	returning a pointer to the beginning of the block
3.4	malloc()	**D.**	p is function that returns pointer to integer
3.5	Typedef	**E.**	allocates memory but does not clear memory
3.6	int(*p)[10]	**F.**	Two
3.7	Structure	**G.**	can be used to create variables of old types
3.8	calloc( )	**H.**	One
3.9	int(*p)(void*,void*)	**I.**	is a memory location that is used by several different variables, which may be of different type
3.10	for(;;)	**J.**	*(p + i)
		K.	is different memory location that is used by several different variables, which may be of different type
		L.	can be used to create variables of new types
		M.	allocate and clear memory

4. Each statement below has a blank space to fit one of the word(s) or phrase(s) in the list below. Enter your choice in the "OMR" answer sheet supplied with the question paper, following instructions therein. (1x10)

A.	bit	**B.**	header file	**C.**	fseekf
D.	Call by value	**E.**	static	**F.**	exit
G.	Index	**H.**	stdio.h	**I.**	break
J.	Ctype.h	**K.**	unstructured	**L.**	getc
M.	pointer				

4.1 A function call mechanism that passes arguments to a function by passing a copy of the values of the arguments is _____.

4.2 NULL is macro constant which has been defined in the heard file _____.

4.3 Function _____ repositions the file position pointer to the beginning of the file.

4.4 A library function _____ causes an exit from the program in which it occurs.

4.5 The _____ statement causes an exit from the innermost loop or switch.

4.6 _____ data member can only be used in static functions.

4.7 _____ cannot be legitimately passed to a function.

4.8 The smallest data item a computer can process is called a(n) _____.

4.9 An array element is accessed using an _____ number.

4.10 Name the header file to be included for the use of built in function isalnum() is _____ .

PART TWO

(Answer any **FOUR** questions**)**

5.

a) Write a 'C' program to count number of words in a string.
b) Write a 'C' program to find the power of number using function.
c) Write a 'C' program to list of keywords which must be sorted in increasing order in the table.

(5+5+5)

6.

a) What is dangling pointer in 'C'? What is wild pointer in 'C'? Give example.
b) Write a 'C' program to write a line of string at a text file.

(6+9)

7.

a) What will be printed as the result of the operation below?

```
main()
{  int x=20,y=35;
    x=y++ + x++;
    y= ++y + ++x;
    printf("%d %d \n",x,y); }
```

b) What is void data type? Write any three use of void data type.
c) What do you understand by 'pointer to function'? Explain it by any example?

(4+5+6)

8.

a) Write a 'C' program that displays the recommended actions depending on the color of a traffic light using the switch statement.
b) Write a 'C' program to find size of structure without using sizeof operator.
c) What are the merits and demerits of an array in 'C'?

(5+5+5)

9.

a) Write a 'C' program to print only first 12 characters including blank space from file test.txt.
b) What is command line argument? Give Example through 'C' program.
c) What are preprocessor directions? Why do we need them? Explain various preprocessor directives?

(6+5+4)