(6)

Time : 10:30 a.m. to 1:30 p.m.   Max. Marks : 70

Note : Write answers of both the sections in separate answer sheets.

SECTION – I

Q-1[a]: Differentiate between algorithm and flowchart. Also list symbols **[4]** used to draw flow chart.

[b]: Define Variable. Explain rules to declare valid variable in C **[3]** language.

[c]: Write an algorithm / a flowchart to accept the value of n and find & **[3]** display the sum of first n terms of following series:
   Sum = 1! + 1! + 2! + 3! + 5! + 8! + 13! , . . .

Q-2[a]: Explain structure of C language program. **[3]**

[b]: State whether the following statements are valid or invalid: **[3]**
   (i)   while(1) {printf("GDCST");}
   (ii) for(;;);
   (iii) #define RAM=12;
   (iv) name = "mca";   (Note : name is character array of 5 elements)
   (v)   printf("%c %d",66,65);
   (vi) n = 55 + 15 * 3 / 3;   (Note n is a character variable)

[c]: List out the looping structures available in C. Explain any one of **[4]** them in detail.

[d]: Write a program to accept an integer number and then print the **[3]** reverse of the given number.

Q-3[a]: Define array. Explain how 1D and 2D array are declared and **[3]** initialized in C language.

[b]: Differentiate : **[3]**
   (i) Entry controlled and exit controlled loop
   (ii) Automatic type conversion and type casting

[c]: What will be the output, if any, for the following programs, **[2]** otherwise specify error(s):

```
(i) #include<stdio.h>              #include<stdio.h>
    main()                         main()
    {                              {
      char ar[ ] = "SPU";            struct bits
        printf("\n%s", &ar[1]);      {
        printf("\n%s", ar);            float f:2;
        printf("\n%s", &ar);         }bit;
        printf("\n%c", ar[1]);       printf("%d\n", sizeof(bit));
    }                              }
```

[d]: Define function. Explain various methods to pass parameter to user **[4]** defined function with appropriate example.

Q-4[a]: List storage classes used in C program. Differentiate any two of them. **[3]**

[b]: What is a structure? How does a structure differ from an array? How are the members of structure variable assigned initial values? **[3]**

[c]: Indicate error(s), if any, for the following code fragments, otherwise give output: **[4]**

(i)
```
int no = 5;
if ( no = 7)
        printf("no is seven\n"));
else
        printf("\no is not seven\n");
```

(ii)
```
printf("%d\n", printf("GDCST\n"));
```

(iii)
```
char ar[10] = "Sardar Patel";
printf("%d", strlen(&ar[5]);
```

(iv)
```
int a = 3;
a = a > 3 ? a < 3 : 5;
```

Q-5[a]: Define String. Explain any two string handling functions with example. **[4]**

[b]: What is pointer? Explain the use of pointers with suitable example. **[2]**

[c]: Write a function that returns one if the inputted number is prime and returns zero otherwise. **[3]**

[d]: Do as directed: **[3]**

(i) How are formal arguments declared within a function?
(ii) What are the three principal components of a function definition?
(iii) Can an array be included as a member of a structure? How/why?

Q-6[a]: State the arguments that can be passed in main() function. Discuss significance of each argument by giving an example. **[3]**

[b]: Match the following: **[4]**

	A		B
(i)	#define	a.	If this macro is defined
(ii)	#ifdef	b.	Token merge, creates a single token from two adjacent ones
(iii)	##	c.	Inserts a particular header from another file
(iv)	#include	d.	Test if a compile time condition is true
		e.	Defines a preprocessor macro

[c]: Describe the #define and #include preprocessor directives. **[3]**

[d]: Explain fopen() and fclose() file handling functions with syntax and example. **[3]**

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