

Computer Programming

End Semester Exam

Set - 6

Date: 26-03-2022
Max Marks: 24

- Answer all questions.
- Write your roll number and set number on top of each page.
- Save your scanned file with the name Setnumber_Rollnumber.pdf

(eg: Set6_S2021XXXXX.pdf)

1.

(a) Complete the following code for computing binomial coefficients. Write the expressions A, B, C, D and E. Each of the expressions A to E carries 1 mark.
(5 Marks)

```
#include<stdio.h>

int min(int a, int b) { return (a < b) ? a:b ; }

int function(int n, int k)
{
    int C[n + 1][k + 1];
    int i, j;
    for (i = 0; i <= n; i++)
    {
        for (j = 0; j <=     A    ; j++)
        {
            if (j == 0 || j ==     B    )
                C[i][j] =     C    ;
            else
                C[i][j] =     D     +     E    ;
        }
    }

    return C[n][k];
}

int main()
{
    int n = 7, k = 3;
    printf("Value of C(%d, %d) is %d ", n, k, function(n, k));
    return 0;
}
```

(b) What is the value returned by function(n,k) in the above code? Show your calculations.
(3 Marks)

2. (a) Write a program to display the following pattern.

[4+4
Marks]

```
123454321
 1234321
   12321
    121
     1
```

- (b) Explain the following functions in file operations:

(i) getw() (ii) putw() (iii) fscanf() (iv) fprintf()

3. A. Fill in the blanks (a and b) by a suitable code so that the output of the program is -5. [1-mark]

```
1  #include <stdio.h>
2  int f(int , int n)
3  {
4      if(n<=0) return 0;
5      else
6          if(*a%3==0) return *a + f(a+1, n-1);
7      else
8          return *a - f(a+1, n-1);
9  }
10
11 int main() {
12
13     int a[]={12, 7, 10, 4, 11, 6, 10,12,11};
14
15
16     printf("%d", );
17
18     return 0;
19 }
```

a

b

B. What is the output of the below program? [1-mark]

```
#include<stdio.h>
int main()
{
    char *ptr;
    char string[] = "learn C from dennis ritchie book";
    ptr = string;
    ptr += 6;
    ptr--;
    printf("%s",--ptr);
    return 0;
}
```

C. What is the output of the below program? [2-mark]

```
1 #include<stdio.h>
2 int main(){
3     char *cities[] = {"India", "Taiwan", "Australia"};
4     int **i = &cities[0];
5     int **j = &cities[1];
6     int **k = &cities[2];
7     printf("%c%c%c\n", **i+3,**j-3,**k+3);
8     return 0;
9 }
```

D. What is the output of the below program? [1-mark]

```
1  #include <stdio.h>
2
3  int main() {
4      // Write C code here
5      struct s1
6      {
7          char *z;
8          int i;
9          struct s1 *p;
10     };
11
12     struct s1 a[]={{"Nagpur",1, a+1},{ "Delhi",2, a+2},{ "Chennai",3,
13
14     struct s1 *ptr=a+1;
15
16     printf("%s %s %s", a[0].z, ptr->z, a[2].p->z);
17
18
19     return 0;
20 }
```

E. What is the output of the below program?[1-mark]

```
1  #include <stdio.h>
2  int main() {
3      struct s
4      {
5          char *z;
6          int i;
7          struct s *p;
8      };
9
10     struct s a[]={{"IIIT Sri City",1, a+2},{ "IIIT Lucknow",2,
11     ,{"IIIT Raipur",3, a}};
12     struct s *ptr=a;
13     ptr++;
14     printf("%s\n", ++(ptr->z));
15     printf("%s\n", a[(-ptr)->i].z);
16     printf("%s", a[(-ptr->p->i).z);
17     return 0;
18 }
```

F. What is the output of the below program ? [2-mark]

```
1  #include<stdio.h>
2  struct test
3  {
4  int i;
5  char *c;
6  };
7  struct test str[]={ 8, "abms", 8, "adsa", 7,"computer programming",3, "maths",
8                      4, "dbms"};
9  main()
10 {
11  struct test *p=str+1;
12  --p;
13
14  printf("%s ", ++(p++->c));
15
16  printf("%c ", *++p->c);
17
18  printf("%d ", p[0].i);
19
20  printf("%s ", p->c);
21 }
```
