Computer Programming

End Semester Exam

Set - 2

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: Set2_S2021XXXXX.pdf)

1. Consider the following Fibonacci series.
   $F(n),\ n \geq 0$: $0,\ -1,\ 1,\ -2,\ 3,\ -5,\ 8,\ -13, \ldots$ **(3+5 = 8 Marks)**

   a) Specify the base conditions (on n) and the recursive expression for $F(n)$ in every case to complete the recurrence for $F(n)$:
   b) Complete the following code segment that prints $F(n)\ for\ n = 0, 1, \ldots, N$. Write the expressions A, B, C, D and E.

```
void Fib(int N)
{
        int n, x = 0, y = ____A____;
        for(n = 0; n < N; ++n)
        {
                int t = ____B____;
                printf("Fib(%d) = %d\n", n, ____C____);
                y = ____D____;
                x = ____E____ ;
        }
}
```

2. [4+4 Marks]

   (a) Write a C program to multiply two matrices of different order.
   (b) Discuss command line arguments in detail with suitable examples.

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

```
#include <stdio.h>
int f(int [A], int n)
{
if(n<=0) return 0;
else
if(*a%2==0) return [B] + f(a+1, n-1);
else
return *a - f(a+1, n-1);
}

int main() {

    int a[]={12, 7, 13, 4, 11, 6, 10};


    printf("%d", f(a,7));

    return 0;
}
```

(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 += 7;
    ptr++;
    printf("%s",ptr);
    return 0;
}
```

(c) What is the output of the below program ? [2-mark]

```c
#include<stdio.h>
int main(){
  char *cities[] = {"UAE", "Spain", "America"};
  int **i = &cities[0];
  int **j = &cities[1];
  int **k = &cities[2];
  printf("%c%c%c\n", **i+2,**j-2,**k+2);
  return 0;
}
```

(d) What is the output of the below program? [1-mark]

```c
#include <stdio.h>

int main() {
    // Write C code here
  struct s1
  {
   char *z;
   int i;
   struct s1 *p;
  };

  struct s1 a[]={{"Delhi",1, a+1},{"Mumbai",2, a+2},{"Chennai",3, a}};

  struct s1 *ptr=a+1;

  printf("%s %s %s", a[0].z, ptr->z, a[2].p->z);


    return 0;
}
```

(e) What is the output of the below program ? [1-mark]

```c
#include <stdio.h>
int main() {
   struct s
   {
    char *z;
    int i;
    struct s *p;
   };

   struct s a[]={{"IIIT Sri City",1, a+2},{"IIIT Lucknow",2, a+1}
       ,{"IIIT Raipur",3, a}};

   struct s *ptr=a;
   printf("%s\n", ++(ptr->z));
   printf("%s\n", a[(++ptr)->i].z);
   printf("%s", a[--ptr->p->i].z);
     return 0;
}
```

(f) What is the output of the below program? [2-mark]

```c
#include<stdio.h>
struct test
{
int i;
char *c;
};
struct test str[]={3, "maths", 4, "dbms", 8, "abms", 8, "adsa", 7,"computer
    programming"};
main()
{
 struct test *p=str;
 p=p+2;

 printf("%s ", ++(p++->c));

 printf("%c ", *++p->c);

 printf("%d ", p[0].i);

 printf("%s ", p->c);
}
```

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