Principles of Programming

## Midterm Quiz - SEC1

1) Write a function called my\_printf(char format[] , int ints[] , float floats[] , char str[][]);

(25pts)

* printf() and scanf() not allowed
* math.h allowed
* string.h allowed

// This code must work.

int ints[1000] = { 1 , 223 , 76 }

float nt floats[1000] = { 25.4 , 33.8 , 100.1 }

char str[1000][100] = { “Hello” , “World” , “Programming” }

my\_printf(“%d I’am Ali\t%d I Love C %f %s” , ints , floats , str );

// output = 1 I’am Ali 223 I Love C 25.4 Hello

**(At home implement this problem with stdarg.h library)**

2) Develop void infix\_to\_postfix(char \*infix, char \*postfix) , this function convert infix exp to postfix one , also develop void postfix\_eval(char \*postfix); this function evaluate result value of a postfix exp.(15 + 15pts)

* printf() is allowed.
* scanf() not allowed.
* string.h allowed.
* math.h not allowed.

char infix[] = “2+4\*(3-1)”

char postfix[100];

infix\_to\_postfix(infix,postfix);

// postfix[] = 2431-\*+

postfix\_eval(postfix);

// it will print 10

3) Develop a program which accepts a polynomial function as its input and plot its curve in the output. Its curve must start from(0,0) and end at (100,100).It must show points natural Xs and also curve must be drawn using only asterisk(\*).No need to show axis.(25pts)

// Y= X^2

// Y = 5

// Y = X^2+2X^3

4)Develop a Program for Tower of Hanoi .

Tower of Hanoi is a mathematical puzzle where we have three rods and n disks. The objective of the puzzle is to move the entire stack to another rod, obeying the following simple rules:

1) Only one disk can be moved at a time.

2) Each move consists of taking the upper disk from one of the stacks and placing it on top of another stack i.e. a disk can only be moved if it is the uppermost disk on a stack.

3) No disk may be placed on top of a smaller disk.

Prototype is up to you.

