KIET Group of Institutions

Department of Information Technology
COURSE B.Tech., VI SEM,
Assignment No.-1 (Theory Assignment)
Software Engineering (KCS-601)

Q. No.	Questions	Marks	BL
1	Consider the below program and Find various Halstead metrics:	10	BL-5

```
#include < stdio.h >
#define MAXLINE 100
int getline(char line[],int max);
int strindex(char source[],char search for[]);
char pattern[ ]="ould";
int main()
{
     char line[MAXLINE];
     int found = 0;
     while(getline(line,MAXLINE)>0)
          if(strindex(line,  pattern)>=0)
          {
               printf("%s",line);
               found++;
          }
     return found;
}
```

```
int getline(char s[],int lim)
{
     int c,i=0;
     while(--lim > 0 && (c=getchar())!= EOF && c!='\n')
          s[i++]=c;
     if(c=='\n')
          s[i++] = c;
     s[i] = '\0';
     return i;
}
int strindex(char s[],char t[])
{
     int i,j,k;
     for(i=0;s[i]  !='\0';i++)
     {
          for(j=i,k=0;t[k]  !=  '\0',s[j]  ==t[k];j++,k++);
          if(k>0 && t[k]  =='\0')
               return i;
     }
     return -1;
}
```

2	Construct flow graph, DD path graph for the below program and Find the cyclomatic complexity of the code.	10	BL-5

```
#include <conio.h>
#include <math.h>
1       int main()
2     {
3       int a,b,c,validInput=0,d;
4       double D;
5       printf("Enter the 'a' value: ");
6       scanf("%d",&a);
7       printf("Enter the 'b' value: ");
8       scanf("%d",&b);
9       printf("Enter the 'c' value: ");
10      scanf("%d",&c);
11      if ((a >= 0) && (a <= 100) && (b >= 0) && (b <= 100) && (c >= 0)
          && (c <= 100)) {
12        validInput = 1;
13        if (a == 0) {
14          validInput = -1;
15        }
16      }
17      if (validInput==1) {
18        d = b*b - 4*a*c;
19        if (d == 0) {
20          printf("The roots are equal and are r1 = r2 = %f\n",
                  -b/(2*(float) a));
21        }
22        else if ( d > 0 ) {
23          D=sqrt(d);
24          printf("The roots are real and are r1 = %f and r2 = %f\n",
                    (-b-D)/(2* a), (-b+D)/(2* a));
25        }
26        else {
27          D=sqrt(-d)/(2*a);
28          printf("The roots are imaginary and are r1 = (%f,%f) and
                    r2 = (%f,%f)\n", -b/(2.0*a),D,-b/(2.0*a),-D);
29        }
30      }
31      else if (validInput == -1) {
32        printf("The vlaues do not constitute a Quadratic equation.");
33      }
34      else {
35        printf("The inputs belong to invalid range.");
36      }
37      getche();
38      return 1;
39    }
```

Note:

- ✓ **Write Assignment on A4 Size Page only (Handwritten).**
- ✓ **Write your Name, Roll Number and Assignment Number on top of page.**
- ✓ **Answer all questions.**
- ✓ **Write neat and clean your answers.**
- ✓ **Submit this assignment before 20 April 23.**
- ✓ **Students are required to submit assignment to me in handwritten format.**