SYLHET ENGINEERING COLLEGE

Department of Computer Science & Engineering

Course Title: **Compiler**

Course Code: **CSE 604**

Remarks:

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Ans.-1

Code:

```c
#include<stdio.h>
#include<string.h>
void main() {
 char const[100]="\0",k[100]="\0", s[100]="\0", opt[100]="\0",idf[100]="\0" ;
 char key[6][10]={"if", "do","while","for","int","float"};
char ch;
char ptr[10][10]={"\0"};
int i=0,j=0,l=-1,n=-1s=-1,p=-1;
 char exp[100] = "if(a/b)==10";
printf("The tokens are:\n");
do {
 ch=exp[i];
 if(isalpha(ch)) {
 l=-1; ptr[++n][++l]=ch;
 i++;
 ch=exp[i];
if(isalpha(ch)||isdigit(ch)) {
while(isalpha(ch)||isdigit(ch)) {
 ptr[n][++l]=ch;
 i++;
ch=exp[i];
 }
while(j<6){
if(strcmp(key[j],ptr[n])==0){
ptr[n][++l]="";
strcat(k,ptr[n]);
```

```
break;
}
If(j==5){
ptr[n][++l]="";
strcat(idf,ptr[n]);
}
j++;
}
}
else {
 ptr[n][++l]="";
strcat(idf,ptr[n]);
}
 i--;
 ch=exp[i];
j=0;
 }
else if(isdigit(ch)) {
 k=-1;
 ptr[++n][++l]=ch;
i++;
ch=exp[i];
 if(isdigit(ch)){
 while(isdigit(ch)) {
 ptr[n][++l]=ch;
 i++;
ch=exp[i];
 }
 }
```

```c
        i--;
         ch=exp[i];
         ptr[n][++l]="";
        strcat(const,ptr[n]);
        }
        else if(ch=='+'||ch=='-
'||ch=='*'||ch=='/'||ch=='%'||ch=='<'||ch=='>'||ch=='='||ch=='!') {
         opt[++p]=ch;
        i++;
        ch=exp[i];
         if(ch=='+'||ch=='- '||ch=='*'||ch=='/'||ch=='%'||ch=='<'||ch=='>'||ch=='='||ch=='!')
        { opt[++p]=ch;
        } else {
         i--;
         ch=exp[i];
         opt[++p]=' ';
        }
        }
        else {
         s[++s]=ch;
         s[++s]=" ";
         }
        i++;
        }while(exp[i]!='\0');
         printf("Keyword:\n");
         puts(k);
        printf("Identifier:\n");
         puts(idf);
         printf("Constant:\n");
```

```
        puts(const);

        printf("Operator:\n");

      puts(opt);

      printf("Symbol:");

      puts(s);

      }
```

Ans.-2

Code:

```
#include<bits/stdc++.h>
using namespace std;
void dfa(string str) {
 int s1 = 0, s2 = 0,s3;
  for (int i = 0; i < str.length(); i++) {
    if ((str[i] == '1' && s2 == 0) || (str[i] == '0' && s2 == 3))
 {
  s3 = 1;
 }
else if ((str[i] == '1' && s2 == 3) || (str[i] == '0' && s2 == 0))
{
s3 = 2;
 }
else if ((str[i] == '1' && s2 == 1) || (str[i] == '0' && s2 == 2)) {
 s3 = 0;
 }
else if ((str[i] == '1' && s2 == 2) || (str[i] == '0' && s2 == 1)) {
s3 = 3;
```

```
    }
  s2 = s3;
  }
 if (s3 == 0) {
  cout << "String is accepted" << endl;
 } else {
 cout << "String is not accepted" << endl;
  }
  }
 int main() {
  string str ;
  cin >> str;
  dfa(str);
 return 0;
 }
```

Ans.-3

Code:

```
#include<bits/stdc++.h>
 using namespace std;
 int main() {
 printf("Enter a string:");
 string inpstr;
cin >> inpstr;
int tbl[4][2]={{0,1},{2,3},{0,1},{2,3}}, s=0,h=1,i;
for(i=0;i< inpstr.length();i++){
```

```c
if(inpstr[i[=="0"){
s=tbl[s][0];
}
else if(inpstr[i]=="1"){
s=tbl[s][1];
else h=0;
 }
}
if(s==0&&h==1){
 printf("accepted.\n");
}
 else{
printf("not accepted.");
}
```