1) Write a program to recognize strings under 'a*', 'a*b+', 'abb'

Answer:

```cpp
#include<iostream>
#include<string>
using namespace std;

int main()
{
    char s[20],c;
    int state=0,i=0;

    cout << "\n Enter a string:";
    cin >> s;

    while(s[i]!='\0')
    {
        switch(state)
        {
            case 0: c=s[i++];
                if(c=='a')
                    state=1;
                else if(c=='b')
                    state=2;
                else
                    state=6;
            break;

            case 1: c=s[i++];
                if(c=='a')
```

```
            state=3;
      else if(c=='b')
            state=4;
      else
            state=6;
break;


case 2: c=s[i++];
    if(c=='a')
            state=6;
      else if(c=='b')
            state=2;
      else
            state=6;
break;


case 3: c=s[i++];
    if(c=='a')
            state=3;
      else if(c=='b')
            state=2;
      else
            state=6;
break;


case 4: c=s[i++];
    if(c=='a')
            state=6;
      else if(c=='b')
```

```cpp
                state=5;
            else
                state=6;
        break;

        case 5: c=s[i++];
            if(c=='a')
                state=6;
            else if(c=='b')
                state=2;
            else
                state=6;
        break;

        case 6: cout << "\n %s is not recognised.";
        exit(0);
    }
}

if(state==1)
    cout << "\n %s is accepted under rule 'a'";
else if((state==2)||(state==4))
    cout << "\n %s is accepted under rule 'a*b+'";
else if(state==5)
    cout << "\n %s is accepted under rule 'abb'";

}
```