

Consider the following complete program:

```
1 #include <iostream>
  using namespace std;
3
4 char* strcpy(const char* s) {
5     if (s==0) return 0;
6
7     int n = 0;
8     while (s[n] != 0)
9         ++n;
10
11    char* pc = new char [n+1];
12
13    for (int i = 0; s[i]; ++i)
14        pc[i] = s[i];
15    pc[n] = 0;
16
17    delete [] s;
18    return pc;
19 }
20 void* address(void* input) {
21     return &input;
22 }
23 int main() {
24     string s;
25     char* cstr;
26     while (cin>>s && s!="quit") {
27         cstr = strcpy(&s[0]);
28         cout << cstr << "\n";
29         cout << address(cstr) << endl;
30         cout << address(&*(cstr+2));
31         delete [] cstr;
32     }
33 }
```

1. Explain what the conditional on line 5 is doing.
2. What is the while loop on line 8 doing?
3. What happens on line 11?
4. What's happening on line 13?
5. What is the purpose of line 16?
6. What is the purpose of line 18?

7. What is the `address()` function do?

8. If the user types "dog" into the keyboard and presses "Enter" what will the output be? (Just describe it...)