Questions

1. What's the output of the following?

A.

```
#include<bits/stdc++.h>
using namespace std;
int main()
{
    string s = "";
    cout << 'a' + s + 'a';
    return 0;
}
```

B.

```
#include<bits/stdc++.h>
using namespace std;
int main()
{
    string s="aba",m=s+'b'+s;

    cout << m;

    return 0;
}
```

C.

```cpp
#include<bits/stdc++.h>
using namespace std;
int main()
{
    string s = "ab";
    int a = 68;
    s += a;
    cout << s;
    return 0;
}
```

D.

```cpp
#include<bits/stdc++.h>
using namespace std;
int main() {
    string s = "ab";
    s += '\n';
    s += s;
    s.pop_back();
    cout << s;
     return 0;
}
```

E.

```
#include<bits/stdc++.h>
using namespace std;
int main() {
      string s = "abcde";
      cout << s.substr(2,3);
      return 0;
```

F.

```
#include<stdio.h>
#include<string.h>
int main()
{
char str[] =     "India\0\BIX\0";
cout<<str;
return 0;
}
```

a. BIX
b. India
c. India BIX
d. India\0BIX
e. India\0BIX\0

G.

```cpp
#include <iostream>
#include <string>
using namespace std;
int main ()
{
std::string str ("Sanfoundry.");
str.back() = '!';
std::cout << str << endl;
return 0;
}
```

a. Sanfoundry.!
b. Sanfoundry.
c. Sanfoundry!
d. Sanfoundry!.

H.

```cpp
#include <iostream>
#include <string>
using namespace std;
int main() {
     string s("i love acm comuinty");    // output
     while (s.find_first_of("auioe") != string::npos) {

          s[s.find_first_of("auioe")] = '*';
     }
     cout << s;

}
```

I.

```
include<iostream>
#include<string>
using namespace std;
int main() {
	string s = "ABCD";
	for (int i = 0; i < 5; i++) {
		s += s;
	}
	cout << s.size();
	return 0;
}
```

J.

```
#include <iostream>
#include <cstring>
using namespace std;

int main()
{
	string s(2, '*');
	s.append("I Can");
	s += string(2, '*');
	cout << s;

	return 0;
}
```

K.

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

int main()
{
	string s("101010");
	int idx1 = s.find_first_of('1');
	int indx2 = s.find_first_not_of('0');
	int idx3 = s.find_last_of('0');
	int idx4 = s.find_last_not_of('1');
	swap(s[idx1], s[indx2]), swap(s[idx3],
s[idx4]);
	cout << s;

	return 0;
}
```

L.

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

int main()
{

	string s("ACM ASSUIT");
	string s2;
	s2.assign(s, 4, 6);
	string s3 = s.substr(4, 6);
	cout << (s2 == s3 ? "Yes\n" : "No\n");
	s3.assign("I love Acm Icpc", 11);
	cout << s3 + s2;
```


```
    return 0;
}
```

M.

```
#include <iostream>
#include <string>
using namespace std;
int main()
{
    string s("8572482");
    int idx1 = s.rfind("2");
    int idx2 = s.find_last_not_of("8");
    swap(s[idx1], s[idx2]);
    cout << s;

    return 0;
}
```

N.

```
#include <iostream>
#include <algorithm>
#include <string>
using namespace std;
int main()
{
    string s("AABCBIPPNNV77UQEECXXXOIIAAAZZ"), ss = s;
    s.resize(unique(s.begin(), s.end()) - s.begin());
    cout << s.size() << ' ' << s << '\n';
    sort(ss.begin(), ss.end());
    ss.resize(unique(ss.begin(), ss.end()) -
ss.begin());
    cout << ss.size() << ' ' << ss << '\n';

    return 0;
```


```
}
```

O.

```
#include <iostream>
#include <cstring>
using namespace std;

int main()
{

      string s1("ACM ASSUIT ..");
      char s2[20];
      int sz = s1.copy(s2, 6, 4);
      s2[sz] = '\0';
      cout << s2;
      cout << '\n';
      string s3 = s2;
      s3.insert(0, "ICPC-");
      cout << s3;

      return 0;
}
```

P.

```
#include <iostream>
#include <string>
using namespace std;
int main()
{
    string str("I like to code in C");
    int sz = str.size();
    str.resize(sz + 2, '+');
    str.resize(14);
    cout << str << '\n';

    return 0;
}
```

a. I like to code in c
b. I like to code
c. I like to code in c++
d. None of the mentioned

2. Essay questions :

A. How to add a char in the last of the string in two different ways?

B. How to clear a string in two different ways?

C. Is string a built-in data type?

D. How many parameters are there in getline function?
   a. 1
   b. 2
   c. 2 or 3
   d. 3

E. How does the strings are stored in the memory?
   a. Contiguous
   b. Non-contiguous
   c. Null
   d. All of the mentioned

F. The string HELLO WORLD needs :
   a. 11 bytes
   b. 12 bytes
   c. 10 bytes
   d. 8 bytes

G. What does C++ append to the end of a string literal constant?
   a. a space
   b. a number sign (#)
   c. an asterisk (*)
   d. a null character

H. Pick the correct statement about string objects in C++.
   a. String objects must be terminated by a null character('\0').
   b. String objects have a static size.

c. String objects have a dynamic size.
d. String objects use extra memory than required.

I. Which of the following is correct way of concatenating two string objects in C++?

a.

```
string s1 = "hello";
string s2 = "world";
string s3 = s1 + s2;
```

b.

```
string s1 = "hello";
string s2 = "world";
string s3 = s1.append(s2);
```

c.

```
string s1 = "hello";
string s2 = "world";
string s3 = strcat(s1,s2);
```

J. How to iterate over a string in different ways?

3. Problems:-

a. Write a program that takes a line and print every word in a line.

b. Write a C++ program that prints the words of a string in a reversed order without using any extra memory (don't use arrays or vectors ...)

example:ICPC ASSUIT COMMUNITY ⇒ COMMUNITY ASSUIT ICPC

c. Write a program that takes a string S. which contain many words and space between any two words, your task is to print two words, the first one is the word which has the largest size, if there is more than one word, print any of them, the second one is the largest lexicographical one, if there is more than one word, print any of them.

Answers

1. Output:

   a. aa

   b. abababa

   c. abD

   d.

```
Ab
Ab
```

   Not

```
Ab
Ab
```

e. cde

f. India

g. c.Sanfoundry!

h. * l*v* *cm c*m**nty

i. 128

j. **I Can**

k. 101010

l. Yes
I love Acm ASSUIT

m. 8572482

n. 18 ABCBIPNV7UQECXOIAZ
14 7ABCEINOPQUVXZ

o. ASSUIT
ICPC-ASSUIT

p. I like to code

2. Essay questions :

a.
   i. s.push_back(c);
   ii. s += c;

b.
   i. s.clear();
   ii. s = "";

c. C++ - Is string a built-in data type?

d. 2 or 3.

e. Contiguous.

f. 11 bytes.

g. A null character.

h. String objects have a dynamic size.

i. a&b.

j. 4 different ways to iterate a string.

3. problems

    a. https://www.ideone.com/ADmvzZ

    b. https://www.ideone.com/JufkSU

    c. Try by yourself