KAZAKH ▦ KBTU ▦ BRITISH

T   E   C   H   N   I   C   A   L

U   N   I   V   E   R   S   I   T   Y

KAZAKH-BRITISH TECHNICAL UNIVERSITY
FACULTY OF INFORMATION TECHNOLOGIES
Course: Programming Principles I   **Date:** 14/12/2019
Variant: 2

Answers section

If you have multiple answers for one question write them all

1.	5.	9.	13.	17.
2.	6.	10.	14.	18.
3.	7.	11.	15.	19.
4.	8.	12.	16.	20.

Questions section

1. Which of the following data types CANNOT store the number 47255?

   (a) int   (b) float   (c) char   (d) double

2. What will be the output of this code, if variable "in" will be 0.

```cpp
#include <iostream>
using namespace std;
int main(){
    int in;
    string num[10] = {"Greater than 9", "one", "two", "three", "four",
                "five", "six", "seven", "eight", "nine"};
    cin >> in;
    if(in > 9){
        cout << num[0];
    }
    else{
            cout << num[in];
    }
    return 0;
}
```

   (a) One   (b) Two   (c) It will stop with and error   (d) Greater than 9

3. What will be the output of this code:

```cpp
#include <iostream>
using namespace std;
int main(){
    int i = 0;
    if (i == '0') cout << "Cheating is bad";
    else if (i == '1') cout << "Don't Cheat";
```

```
        else cout << "IWillNeverCheatAnymore";
        return 0;
}
```

   (a) Cheating is Bad   (b) Nothing   (c) Don't Cheat   (d) IWillNeverCheatAnymore

4. Which of the following gives us a memory address of **int array[10]**:

   (a) array[1]   (b) array[0]   (c) array   (d) memory(array);

5. What will be the output of this string concatenation:

```
#include <iostream>
using namespace std;
int main(){
    string x = "10";
    int y = 20;
    string z = x  y;
    return 0;
}
```

   (a) 10+20   (b) 30   (c) 20   (d) It wouldn't compile because of error

6. What will be the output of this code. Please, write answers in the answers section.

```
#include <iostream>
using namespace std;
void swap(int a, int b){
    int c;
    c = b;
    b = a;
    a = c;
}
int main(){
    int a = 5, b = 22;
    swap(a, b);
    cout << a << " " << b;
    return 0;
}
```

7. What will be the output of this code:

```
#include <iostream>
#include <vector>
#include <algorithm>
#include <iterator>
using namespace std;
int main(){
    vector<int> g1;
    for (int i = 1; i <= 5; i += 2)
        g1.push_back(i);
    cout << "Size : " << g1.size();
    return 0;
}
```

(a) Size : 5   (b) Size : 3   (c) 5   (d) 3

8. What will be the output of this code:

```cpp
#include <iostream>
#include <set>
using namespace std;
int main(){
    set<int> a;
    for (int i = 0;i < 100;i++) {
        a.insert(i);
    }
    a.insert(43) ;
    a.insert(32+21+3);
    return 0;
}
```

(a) 100   (b) 102   (c) 99   (d) empty set

9. What will be the output of this code. Please, write answers in the answers section.

```cpp
#include <iostream>
using namespace std;
int main() {
    int a = 1;
    int b = 5;

    a ^= b;
    b ^= a;
    a ^= b;
  cout << a << " " << b;
    return 0;
}
```

10. What will be the output of this code. Please, write answers in the answers section.

```cpp
#include <iostream>
#include <map>
using namespace std;
int main() {
    map<string, int> a;
    string s = "1";
    for (int i = 0;i < 10;i++){
        s += char(i);
        a[s] = i;
    }
    map<string, int> :: iterator it;
    for(it = a.begin(); it != a.end(); ++it) {
        cout << it->second;
    }
    return 0;
}
```

11. What will be the output of this code. Please, write answers in the answers section.

```cpp
#include <iostream>
using namespace std;
int main(){
    int c = 5;
    if( c > 5 && c > 0 )
        cout << c++ << endl;
    if( 1 | 0 )
        c-=-1;
    cout << c << endl;
    if(c)
        ++c;
    cout << c + 1 << endl;
    return 0;
}
```

12. How many strings will be in the output and what will be the first line of the output? Please, write answers in the answers section.

```cpp
#include <algorithm>
#include <iostream>
using namespace std;
int main(){
    string s = "asd";
    sort(s.begin(), s.end());
    do{
        cout << s << endl;
    }while(next_permutation(s.begin(), s.end()));
    return 0;
}
```

13. What will be the output of this code:

```cpp
#include <iostream>
using namespace std;
int main(){
    int a[5] = {0, 1, 6, 8, 9};
    for(int i = 0; i < 6; i++)
        cout << a[i] << " ";
    return 0;
}
```

(a) Yes, there is no mistakes

(b) No, there will be compilation error

(c) No, there will be run-time error

(d) Yes, but there will be warnings

14. What will be the output of this code:

```cpp
#include <iostream>
#include <string>
using namespace std;
int main(){
    string nums;
    cin >> nums;
    int ind = 0;
    for(int i = 0; i<nums.size(); i++){
```

```cpp
        if (nums[i]!='0'){
            nums[ind] = nums[i];
            ind++;
        }
    }
    for(int i = ind; i<nums.size(); i++){
        nums[i] = '0';
    }
    cout << nums << endl;
    return 0;
}
```

(a) Finds the palindrome   (b) Finds number of 0's   (c) Moves 0 to the end of the string   (d) Output 0's

15. Fill the gaps. Please, write answers in the answers section.

```cpp
#include <iostream>
#include <algorithm>
#include <_____> //1
#include <_____> //2
using namespace std;
int main(){
    stringstream ss;
    vector <string> v;
    string s = "I will never cheat on programming exams";
    ss << s;
    string word="";

    while(ss __ word)  //3
    {
        v.push_back(word);
        word = "";
    }

    reverse(_____);  // 4 reverse vector v

    for(int i=0;i<v.size();i++)
        cout<<v[i]<<endl;
    return 0;
}
```

16. Select the incorrect statements for Set (multiple choice)

(a) STL container   (b) unique elements   (c) FIFO   (d) static

17. Fill the gaps. What will be the output of the code below?

```cpp
#include <iostream>
#include <set>
#include <map>
using namespace std;

int main(){
    map <____, ____> m;
```

```
m['C'] = 98;  m['R'] = 100;
m['A'] = 87;  m['Z'] = 75;
map <____, ____>:: iterator it = m.begin();
cout << it->first << " " << it->second;
return 0;
}
```

(a) string, int, A 87   (b) int, char, R 100   (c) char, int, R 100   (d) char, int, A 87

18. What will the "pie" equal to after the operations below?

```
int pie = 12;
pie = pie << 2;
pie = pie >> 1;
pie = pie >> 3;
```

(a) 5   (b) 3   (c) 24   (d) 48

19. What is the output of following program?

```
#include <iostream>
using namespace std;
int main(){
    int n = 12;
    if ( (n % 3 == 0) && (n % 4 == 0) ){
        cout << n/3 << n/4;
    }else
    cout << n;
    return 0;
}
```

(a) 3 4   (b) 12   (c) 4 3   (d) 43

20. What is the output of following program?

```
#include <iostream>
using namespace std;
int main()
{
    for (int i = 0; i <= 5; i++) {
        if (i % 2 == 0) continue;
        else cout << i << " ";
    }
    return 0;
}
```

(a) 0 2 4   (b) 0 1 2 3 4 5   (c) 1 3   (d) 1 3 5