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: 1

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 takes 1 byte of memory?

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

2. Logical operator XOR is denoted by:

   (a) %   (b) #   (c) ^   (d) —

3. What is the output of following program?

```cpp
#include <iostream>
using namespace std;
int main(){
    int x = 15, y = 20;
    x += 23;
    y++;
    cout << x % y;
    return 0;
}
```

   (a) 19   (b) 17   (c) 3   (d) None of them

4. What is the output of following program?

```cpp
#include <iostream>
using namespace std;
int main(){
    int x = 7, y = 2, cnt = -1;
    while(x > y){
        if(x % y == 0){
            cnt++;
        }
```

```
        x--;
    }
    cout << cnt;
    return 0;
}
```

(a) 2   (b) 1   (c) 3   (d) None of them

5. What is the output of following program?

```
#include <iostream>
using namespace std;
int main(){
    int n = 14;
    for(int i = 1; i < n; i *= 3){
        cout << 2 * i <<" ";
    }
    return 0;
}
```

(a) 2 4 6 8 10 12 14 16 18 20 22 24 26

(b) 2 6 18

(c) 4 12

(d) None of them

6. What is the output of following program?

```
#include <iostream>
using namespace std;
int main(){
    int a[6] = {4, 0, 2, -5, -3, 7};
    int cnt = 0;
    for(int i = 0; i < 6; i++){
        if(a[i] >= 0){
            cnt++;
        }
    }
    cout << cnt;
    return 0;
}
```

(a) 3   (b) 4   (c) 2   (d) None of them

7. What is the output of following program?

```
#include <iostream>
#include <string>
using namespace std;
int main(){
    string str = "ENJOY FINALS";
    string sub = str.substr(4, 5);
    cout << sub;
    return 0;
}
```

8. What is the output of following program?

```cpp
#include <iostream>
using namespace std;
bool isRealFit(string faculty, double gpa){
    return (faculty == "fit" && gpa >= 3.5);
}
int main(){
    string f1 = "fitti", f2 = "fit";
    double gpa1 = 3.45, gpa2 = 3.52;
    if(isRealFit(f1, gpa1) && isRealFit(f2, gpa2)){
        cout <<"GOOD";
    }else cout <<":(";
    return 0;
}
```

(a) GOOD   (b) :((c) Error in the code   (d) GPA is not important

9. What is the output of following program?

```cpp
#include <iostream>
#include<vector>
using namespace std;
int main(){
    vector<int> v;
    int arr[5] = {3, 4, 5, 6, 7};
    for(int i = 0; i < 5; i++){
    if(v.size() <= 3 || arr[i] % 2 == 0)
        v.push_back(arr[i]);
    }
    for(int i = 0; i < v.size(); i++){
        cout << v[i] <<" ";
    }
    return 0;
}
```

(a) 3 4 5   (b) 4 6   (c) 3 4 5 6   (d) None of them

10. What is the output of following program?

```cpp
#include <iostream>
using namespace std;
int main(){
    set<int> myset;
    int arr[5] = {3, 4, 5, 6, 7};
    for(int i = 0; i < 5; i++){
        if( arr[i] % 2 == 1){
            myset.insert(a[i]);
        }
    }
    cout <<myset.size();
}
```

(a) 2 (b) 4 (c) 2 (d) Error in code

11. What is the output of following program?

```cpp
#include <iostream>
#include<map>
using namespace std;
int main(){
    map<string, int> mymap;
    string[5] phrases = {"hello", "welcome", "ready",
                         "luck", "positive"};
    for(int i = 0; i < 5; i++){
        mymap[phrases[i]] = i + 1;
    }
    map<string, int> :: iterator it;
    for(it = mymap.begin(); it != mymap.end(); it++){
        cout << it->first <<" ";
    }
    return 0;
}
```

(a) hello welcome ready luck positive

(b) 1 2 3 4 5

(c) hello luck positive ready welcome

(d) None of them

12. What is the output of following program?

```cpp
#include <iostream>
using namespace std;
int main(){
    int a = 5, b = 9;
    int a1 = b << 1;
    int b1 = a >> 1;
    cout << a1 << " " << b1;
    return 0;
}
```

(a) 2 18 (b) 18 2 (c) 10 4 (d) 4 10

13. Evaluate the next expression: **((false or true) ^ false) && true**

(a) true (b) false (c) I don't know (d) true false

14. Which one **is not a correct** variable type in C++?

(a) string (b) float (c) luck (d) double

15. Pick out the correct statement about **maps**.

(a) map has unique values

(b) map has unique keys

(c) map is a static

(d) None of them

16. Pick out the correct statement about **sets**.

    (a) sets store distinct elements
    (b) sets can store any elements
    (c) set of sets is not possible
    (d) None of them

17. Which statement returns **true**?

    (a) a == b
    (b) $(65\%4) \geq (34\%3)$
    (c) true $^\wedge$ true
    (d) None of them

18. Which container doesn't exist in C++?

    (a) multimap   (b) stack   (c) queue   (d) None of them

19. What is the output of following program?

```cpp
#include<iostream>
using namespace std;
int main() {
    int r, x = 3;
    float y = 5;
    r = y % x;
    cout << r;
    return 0;
}
```

    (a) 1   (b) 2   (c) 3   (d) Compile error

20. What is the output of following program?

```cpp
#include <iostream>
#include <string>
using namespace std;
int main(){
    string s = "abaacabaca";
    string t = "ba";
    s.erase(1, 2);
    cout << s.find(t);
    return 0;
}
```

    (a) 1   (b) 6   (c) 4   (d) None of them

Minutes #2 of Faculty of Information Technology meeting November 11, 2019

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