TERM	COURSE NAME	COURSE CODE	VERSION
Winter2020 Quiz6	Object-Oriented Software Development using C++	OOP345	A

Code1.0

```
1. // Functional – bind a function to its arguments
2.  // bind.cpp
3.
4.  #include <iostream>
5.  #include <functional>
6.
7.  double multiply(double* x, double* y) { return (*x) * (*y); }
8.
9.  int main() {
10.
11.     double  num1 = 100;
12.     double  num2 = 200;
13.     auto p = std::bind(multiply, &num1, &num2);
14.     std::cout << "Product = " << p() << std::endl;
15.
16.     num1 = 300;
17.     num2 = 3;
18.     std::cout << "Product = " << p() << std::endl;
19.
20.     num2 = 4;
21.     std::cout << "Product = " << p() << std::endl;
22. }
```

Answer Questions 1-3 using Code 1.0

1. Line 14 prints
    a. 20000
    b. 900
    c. 1200
    d. All of the above
    e. None of the above
2. Line 18 prints
    a. 20000
    b. 900
    c. 1200
    d. All of the above
    e. None of the above
3. Line 21 prints
    a. 20000
    b. 900
    c. 1200
    d. All of the above
    e. None of the above

Code2.0

```
1. / Algorithms - Count If
2. // count_if.cpp

3. #include <algorithm>
4. #include <iostream>

5. int main() {
6.     int a[] = {1, 2, 4, 5, 8, 9, 12, 13, 16, 18, 22};
7.     int n = std::count_if(a, a + 10, [](int i){ return !(i & 1); });
8.
9.     std::cout << n << std::endl;
10.     }
```

Answer Questions 4-5 using Code 2.0

4. Line 9 prints
    a. 7
    b. 6
    c. 8
    d. All of the above
    e. None of the above
5. This program counts:
    a. Counts the number of occurrences of even numbers in the array a within the specified range.
    b. Counts the number of occurrences of odd number in the array a within the specified range.
    c. All of the above
    d. None of the above

Code3.0

```
1. // Algorithms - Transform - Unary Operation
2. // transform_u.cpp

3. #include <vector>
4. #include <algorithm>
5. #include <iostream>

6. int main() {
7.     std::vector<int> v = {1, 2, 4, 5, 7, 8, 10, 13, 17, 21, 43};
8.     std::vector<int> c(11);
9.     std::transform(v.begin(), v.end(), c.begin(),[](int i) { return 3 * i; });
10.      for (auto i : c)
11.          std::cout << i << std::endl;
12.     }
```

Answer Questions 6-10 using Code 3.0

6. First iteration of line 11 is
    a. 129
    b. 63
    c. 12
    d. 6
    e. 3
7. Second iteration of line 11 is
    a. 129
    b. 63
    c. 12
    d. 6
    e. 3
8. Third iteration of line 11 is
    a. 129
    b. 63
    c. 12
    d. 6
    e. 3
9. Last iteration of line 11 is
    a. 129
    b. 63
    c. 12
    d. 6
    e. 3
10. Iteration before last of line 11 is
    a. 129
    b. 63
    c. 12
    d. 6
    e. 3

Code 4.0

```
1. / Algorithms - Transform - Binary Operation
2. // transform_b.cpp

3. #include <vector>
4. #include <algorithm>
5. #include <functional>
6. #include <iostream>

7. int main() {
8. std::vector<int> a = {1, 2, 4, 5, 7, 8, 10, 13, 17, 21, 43};
9. std::vector<int> b = {2, 1, 0, 1, 2, 3, 16, 23, 21, 17, 32};
10.     std::vector<int> c(11);
11.     std::transform(a.begin(), a.end(), b.begin(), c.begin(),
12.     std::plus<int>());
13.     for (auto i : c)
14.         std::cout << i << std::endl;
15.     }
```

Answer Questions 11-15 using Code 4.0

11. First iteration of line 14 is
    a. 75
    b. 38
    c. 4
    d. 3
    e. None of the above

12. Second iteration of line 14 is
    a. 75
    b. 38
    c. 4
    d. 3
    e. None of the above

13. Third iteration of line 14 is
    a. 75
    b. 38
    c. 4
    d. 3
    e. None of the above

14. Last iteration of line 14 is
    a. 75
    b. 38
    c. 4
    d. 3
    e. None of the above

15. Iteration before last of line 14 is
    a. 75
    b. 38
    c. 4
    d. 3
    e. None of the above

Code 5.0

```
// Algorithms - Inner Product
 // inner_product.cpp

 #include <iostream>
 #include <numeric>
 #include <functional>

 int main() {
   1. int a[] = {3, 2, 4, 1}, b[] = {1, 2, 3, 4}, s;

   2. s = std::inner_product(a, &a[4], b, (int)0);
   3. std::cout << "dot product = " << s <<  std::endl;
   4. s = std::inner_product(a, &a[4], b, (int)0,
      std::plus<int>(),
      [](int x, int y) { return (x - y) * (x - y); }
      );
   5. std::cout << "sum of "
      "result = " << s <<  std::endl;
 }
```

Answer Questions 16-17 using Code 5.0

16. Result of line 2 is
    a. 14
    b. 29
    c. 25
    d. 23
    e. None of the above

17. Result of line 4 is
    a. 14
    b. 29
    c. 25
    d. 23
    e. None of the above

Code 6.0

```
#include <iostream>
 #include <fstream>
 #include <sstream>

using namespace std;

// Question #1

 int main(int argc, char* argv[]) {

     std::ofstream fo(argv[1]);
     fo << "Line 1" << std::endl;
     fo << "Line 2" << std::endl;
     fo << "Line 3" << std::endl;
     fo.seekp(0, std::ios::beg);
     fo << "****";
     fo.seekp(4, std::ios::cur);
     fo << "#";
     std::streampos p = fo.tellp();
     fo.seekp(0, std::ios::end);
     fo << "The last line\n";
     fo.seekp(p);
     fo << "^";
     fo.close();

     std::ifstream fi(argv[1]);
     char c;
   1. while (fi.get(c))
   2.     std::cout << c;
}
```

Answer Questions 1-6 using Code 6.0

18. The first line printed by line 2 of the code is
    a. **** 1
    b. L#^e 2
    c. Line 3
    d. Empty line
    e. None of the above
19. The second line printed by line 2 of the code is
    a. **** 1
    b. L#^e 2
    c. The last line
    d. Empty line
    e. None of the above
20. The third line printed by line 2 of the code is
    a. L#^e 2
    b. Line 3
    c. The last line
    d. Empty line
    e. None of the above
21. The fourth line printed by line 2 of the code is
    a. L#^e 2
    b. Line 3
    c. The last line
    d. Empty line
    e. None of the above