AHMEDABAD UNIVERSITY
School of Engineering and Applied Science
2025-2026 Winter

CSE203 Object Oriented Programming
Mid-Term Examination
Sunday 22 February 2026. 02:00 – 02:50

Name:	Roll no.	A	U	2						Marks /30

Instructions: This is an online examination conducted on a Learning Management System (LMS). Duration of the exam: 50 minutes; Total marks: 30; Total questions: 40. There is no negative marking. It is a closed-book examination. Therefore, you are not allowed to exchange or refer to any online or printed material/book during the examination.

Question 1: (20 MCQs, each of 0.5 marks with 25% negative marks)

If x is an array of integers, which of the following is true?
A. x is a constant pointer
B. x++ is valid operation
C. x and &x[0] are different
D. x has no relation with pointer
ANSWER :

What is reason for not allowing adding two pointers?
A. It is not useful operation
B. It may result into location out of memory range
C. It causes a corruption of variables
D. Arithmetic operations are not permitted on pointers.
ANSWER :

Which of the following results in undefined behaviour?
A. Comparing two pointers of same array
B. Assigning one pointer to another of same type
C. Dereferencing a NULL pointer
D. Taking address of a variable
ANSWER :

When passing an array to a function in C:
A. Entire array is copied
B. Base address of array is passed
C. Only first element value is passed
D. Array size is automatically known inside function
ANSWER :

Which statement about **const int *p** is correct?
A. Pointer must always point to constant variable
B. Pointer cannot change its own address
C. Both pointer and value are constant
D. Pointer cannot change the value it points to
ANSWER :

Why are pointers commonly used with large structures?
A. Structures cannot be modified directly
B. To avoid copying large amounts of data
C. Because structures must reside in special memory
D. To prevent padding
ANSWER :

When a structure contains pointer members, copying the structure variable results in

A. Independent copies of dynamically allocated data
B. Two structures sharing the same pointed memory
C. Compilation error
D. Automatic duplication of heap memory
ANSWER :

Which of the following best describes the difference between "Pointer to structure" and "Structure containing pointer" ?
A. Pointer to structure holds address of structure; structure containing pointer holds address of another object
B. Both are conceptually identical
C. Both store structure data directly
D. Structure containing pointer must be dynamically allocated
ANSWER :

C Union allocates memory for
A. All of its members
B. Equal to sum of size of all members
C. Only one of the members randomly
D. Member which is largest in size
ANSWER :

Which operation is not allowed on a bit-field member?
A. Assigning a value within range
B. Using it in arithmetic expressions
C. Taking its address
D. Comparing it with another integer
ANSWER :

Which statement about static data members of a class is correct?
A. Each object has its own copy
B. They must be initialized inside the class definition only
C. They are shared among all objects of the class
D. They cannot be private
ANSWER :

Consider a following C statement?
a = (int *)malloc(n*sizeof(int));
It is equivalent to
A. a = new int;
B. a = n*(new int);
C. a = new int[n];
D. a = new n*int;
ANSWER :

A member function declared as const guarantees that
A. The object cannot be destroyed
B. The function cannot modify any member variables
C. The function cannot be overloaded
D. The object becomes constant permanently
ANSWER :

A banking system allows customers to deposit and withdraw money only through defined methods. Direct modification of account balance is not allowed. Which OO principle is primarily being enforced?
A. Abstraction
B. Encapsulation
C. Inheritance
D. Polymorphism
ANSWER :

When multiple overloaded functions are available, the compiler selects the function based on
A. Return type only
B. Number of lines inside function
C. Order of declaration
D. Exact match first, then best possible match through implicit conversions
ANSWER :

Which statement about inline functions in C++ is correct?
A. The compiler is strictly required to expand every inline function
B. Inline functions are always expanded at runtime
C. The function members written inside class are implicitly treated as candidate inline
D. Inline functions can have loops or recursion
ANSWER :

If a class defines a parameterized constructor but no default constructor, then
A. Compiler automatically generates the default constructor
B. Objects cannot be created at all
C. Objects cannot be created without arguments
D. Copy constructor is deleted automatically
ANSWER :

What is true about private functions?
A. It is accessible only inside the class
B. It is accessible from outside using object of same class
C. It is not accessible from inside or outside the class
D. There is nothing like private functions.
ANSWER :

What is true about static function in C++?
A. It can access instance variables
B. It is called with class name followed by scope resolution operator and access only class variables
C. It is called only with object instance of same class
D. It is allocated memory when object is created.
ANSWER :

Excessive use of friend functions may indicate:
A. Proper encapsulation
B. Strong data hiding
C. Violation of encapsulation principles
D. Improved modularity
ANSWER :

Question 2: Answer the following questions. (20 questions, each of 1 mark with 25% negative marks)

1 Predict output of following C++ program:

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

int main() {
   int x = 5;
   if (x > 2)
      if (x < 4);
         cout << "A";
      else
         cout << "B";
   cout << "C";
   cout << "D";
   return 0;
}
```

A. A
B. B
C. CD
D. BCD
E. none of these
ANSWER:

2 Predict output of following C++ program:

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

int main() {
   int x = 5;
   if (x = 0)
      cout << "True";
   else
      cout << "False";
   return 0;
}
```

A. True
B. False
C. TrueFalse
D. none of these
ANSWER:

3 Predict output of following C++ program:

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

int main() {
   int x = 2;
   switch(x) {
      case 1: cout << "One";
      case 2: cout << "Two";
      case 3: cout << "Three";
      default: cout << "Default";
```

```
    }
    return 0;
}
```

A. TwoThreeDefault
B. TwoThree
C. OneTwoThree
D. Syntax error
E. Default
ANSWER:

4 Predict output of following C++ program:

```
#include <stdio.h>
struct student {
     char name[20];
     char gender, grade;
     };
int main()
{
     struct student s1[10];     //declaring array of 10 students
     printf("It occupies %d bytes memory", sizeof(struct student));
 return 0;
}
```

A. It occupies 22 bytes memory
B. It occupies 220 bytes memory
C. It occupies 210 bytes memory
D. It occupies 10 bytes memory
ANSWER:

5 Predict output of following C++ program:

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

int main() {
    int x = 5;
    if (x > 2 && x < 5)
        cout << "Yes";
    else
        cout << "No";
    return 0;
}
```

A. No
B. Yes
C. YesNo
D. Syntax error
E. Runtime error
ANSWER:

6 Predict output of following C++ program:

```
#include <stdio.h>
#include <stdlib.h>
int main() {
   int *myPtr = (int *)malloc(sizeof(int));
   *myPtr = 101;
   free(myPtr);
   printf("%d", *myPtr);
   return 0;
```

```
}
```

A. 101
B. Undefined Behavior of program(It will print garbage value)
C. Syntax error
D. myPtr
ANSWER:

7 Predict output of following C++ program:

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

void display(int a = 5, int b = 10) {
   cout << a << b ;
}

int main() {
   display();
   display(15);
   display(20, 30);
   return 0;
}
```

A. 51015102030
B. Syntax error
C. 510152030
D. none of these
ANSWER:

8 Predict output of following C++ program:

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

int main() {
   char ch = 'A';
   if (ch == 65)
      cout << "Match";
   else
      cout << "No Match";
   return 0;
}
```

A. Match
B. NoMatch
C. Syntax error
D. Runtime error
ANSWER:

9Predict output of following C++ program:

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

int main() {
   int i = 0;
   while(i <= 2)
      cout << i++ << " ";
      cout << "Done";
}
```

A. 0 1 2 Done
B. 0 Done 1 Done 2 Done
C. 1 2 Done
D. 1 Done 2 Done
ANSWER:

10Predict output of following C++ program:

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

int main() {
   for(int i = 1; i <= 3; i++) {
      for(int j = 1; j <= 3; j++) {
         if(j == 3)
            break;
         cout << i << j << " ";
      }
   }
}
```

A. 11 12 21 22 31 32
B. 11 12 21 22
C. 21 22 31 32
D. 11 12 21
E. None of these
ANSWER:

11Predict output of following C++ program:

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

int main() {
   for (int i = 0; i <= 6; i++) {
      cout << i * 2 << " ";
      i++;
   }
   return 0;
}
```

A. 0 4 8 12
B. 2 6 8 10
C. 0 2 6 8
D. 0 3 6 9
ANSWER:

12Predict output of following C++ program:

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

void modify(int x) {
   x = x + 10;
}

int main() {
   int num = 25;
   modify(num);
   cout << "num: ";
   cout << num;
```

```
   return 0;
}
```
A. num: 25
B. num: 35
C. num: 2510
D. none of these
ANSWER:

13Predict output of following C program:

```
#include<stdio.h>

int main(){
        int a=1;
        int *p;

        p=&a;

        printf("%d", *p);
        printf("%d", a);

        return 0;
}
```
A. 11
B. 1
C. memory address of a
D. &a*p
ANSWER:

14Predict output of following C program:

```
#include <stdio.h>
int larger(int,int);
struct point {
        int x;
        int y;
        };

int main() {
  struct point p;
  int max;
  p.x=10;
  p.y=20;
  max = larger(p.x,p.y);
  printf("Larger = %d",max);
  return 0;
}

int larger(int x,int y) {
  return(x>y?y:x);
}
```
A. Larger = 10
B. Larger = 20
C. syntax error
D. 1020
ANSWER:

15 Write output of following C++ program in the provided space. [Note: Write exact answer only, and avoid using extra spaces]

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

class Test {
   int x;
public:
   Test(int a) {
      x = a;
   }
   void display() {
      cout << x;
   }
};

int main() {
   Test obj(5);
   obj.display();
   return 0;
}
```

ANSWER:

16 Predict output of following C++ program:

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

class Sample {
   int x;
public:
   Sample(int a) {
      x = a;
   }
   void display() {
      cout << x << " ";
   }
};

int main() {
   Sample s1(2), s2(4);
   s1.display();
   s2.display();
   return 0;
}
```

A. 2 4
B. 2
C. 3
D. 4 2
ANSWER:

17 Write output of following C++ program in the provided space. [Note: Write exact answer only, and avoid using extra spaces]

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

```
class Test {
   int x;
public:
   void set(int a) {
      x = a;
   }
   void show() {
      cout << x;
   }
};

int main() {
   Test t;
   t.set(25);
   t.set(30);
   t.show();
   return 0;
}
```

ANSWER:

18 Write output of following C++ program in the provided space. [Note: Write exact answer only, and avoid using extra spaces]

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

class Demo {
public:
   Demo() {
      cout << "A";
   }
};

int main() {
   Demo d1, d2;
   Demo d3, d4;
   return 0;
}
```

ANSWER

19 Write output of following C++ program in the provided space. [Note: Write exact answer only, and avoid using extra spaces]

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

int main() {
   int i = 1;
   while(i < 4)
      cout << i++;
      cout << "done";
   return 0;
}
```

ANSWER:

20 Write output of following C++ program in the provided space. [Note: Write exact answer only, and avoid using extra spaces]

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

int main() {
   int i;
   for(i = 0; i <= 5; i++)
      cout << i;
   cout << i;
}
```

ANSWER: