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Tests, Surveys and Pools Tests Test Canvas : ADS-End term exam - Jul 2020

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, July 2020

Course: Advanced Data Structure

Semester: II

Course Code: CSEG 1004

Time: 2hr.

Programme: B TECH (CSE)LLB(CL)/ (IPR)

Max. Marks:100

Instructions: Answer the All the Questions

Question Settings

You can edit, delete or change the point values of test questions on this page. If necessary, test attempts will be regraded after you submit your changes.

Description
Instructions
Total Questions	60
Total Points	100
Number of Attempts	15

Select: All None Select by Type:

Points

Points:

1. Short Answer: CO3: Write down post order traversal (Use ...

Question	Write down post order traversal (Use comma separation) of binary tree, given Preorder traversal sequence: G,B,Q,A,C,K,F,P,D,E,R,H In order traversal sequence: Q,B,K,C,F,A,G,P,E,D,H,R
Answer	Q,K,F,C,A,B,E,H,R,D,P,G

Points:

2. True / False: CO4: Balanced m-way search tree is called ...

Question

Balanced m-way search tree is called as B-tree.

Answer True
 False



3. Multiple Answer: CO4: Select all correct answers. A non em...

Points: **4**

Question Select all correct answers.
 A non empty B -tree of order m, is an m-way search tree in which

Answer

- The root has at least two child nodes and at most m child nodes.
- the internal nodes except the root have at least $\text{ceil}(m/2)$ child nodes and at most m child nodes
- the number of keys in each internal node is one less than the number of child nodes and these keys partition the keys in the subtrees of the node in a manner similar to that of m-way search trees
- all leaf nodes are in the same level



4. Multiple Choice: CO3: What is simple uniform hashing?

Points: **1**

Question What is simple uniform hashing?

Answer

- Every element has equal probability of hashing into any of the slots
- A weighted probabilistic method is used to hash elements into the slots
- Elements has Random probability of hashing into array slots
- Elements are hashed based on priority



5. Multiple Choice: CO3: The case in which a key other than th...

Points: **1**

Question	The case in which a key other than the desired one is kept at the identified location is called?
Answer	<p>Hashing</p> <hr/> <p><input checked="" type="checkbox"/> Collision</p> <hr/> <p>Chaining</p> <hr/> <p>Open addressing</p>

6. Multiple Choice: CO4: What maximum difference in heights be...

Points: **1**

Question	What maximum difference in heights between the leafs of a AVL tree is possible?
Answer	<p><input checked="" type="checkbox"/> $\log(n)$ where n is the number of nodes</p> <hr/> <p>n where n is the number of nodes</p> <hr/> <p>0 or 1</p> <hr/> <p>atmost 1</p>

7. Multiple Choice: CO3: Which of the following is the hashing...

Points: **3**

Question	Which of the following is the hashing function for separate chaining
Answer	<p>$H(x) = (\text{hash}(x) + f(i)) \bmod \text{table size}$</p> <hr/> <p>$H(x) = \text{hash}(x) + i^2 \bmod \text{table size}$</p> <hr/> <p><input checked="" type="checkbox"/> $H(x) = x \bmod \text{table size}$</p> <hr/> <p>$H(x) = x \bmod (\text{table size} * 2)$</p>

Points: 1

8. Multiple Choice: CO3: Which of the following is a disadvant...

Question	Which of the following is a disadvantage of using separate chaining using linked lists
Answer	<input checked="" type="checkbox"/> It requires many pointers
	<input type="checkbox"/> It requires linked lists
	<input type="checkbox"/> It uses array
	<input type="checkbox"/> It does not resolve collision

Points: 1

9. Multiple Choice: CO3: Which of the following technique stor...

Question	Which of the following technique stores data in a separate entity in case of a collision
Answer	<input type="checkbox"/> Open addressing
	<input checked="" type="checkbox"/> Chaining using doubly linked list
	<input type="checkbox"/> Linear probing
	<input type="checkbox"/> Double hashing

Points: 1

10. Multiple Choice: CO3: What is the advantage of using a doub...

Question	What is the advantage of using a doubly linked list for chaining over singly linked list?
Answer	<input type="checkbox"/> it takes less memory

it is easy to implement

it makes the process of insertion and deletion faster

it causes less collisions



11. Multiple Choice: CO3: What is the time complexity of insert...

Points: **1**

Question	What is the time complexity of insert function in a hash table using a binary tree
Answer	<input checked="" type="checkbox"/> $O(1)$
	<input type="checkbox"/> $O(n)$
	<input type="checkbox"/> $O(\log n)$
	<input type="checkbox"/> $O(n \log n)$



12. Multiple Choice: CO3: What is the advantage of a hash table...

Points: **1**

Question	What is the advantage of a hash table over BST?
Answer	<input checked="" type="checkbox"/> "hash table has a better average time complexity for performing insert, delete and search operations"
	<input type="checkbox"/> hash table requires less space
	<input type="checkbox"/> range query is easy with hash table
	<input type="checkbox"/> easier to implement



Points: **1**

13. Multiple Choice: CO3: What is the time complexity of delete...

Question	What is the time complexity of delete function in the hash table using list head
Answer	<input checked="" type="checkbox"/> $O(1)$
	<input type="checkbox"/> $O(n)$
	<input type="checkbox"/> $O(\log n)$
	<input type="checkbox"/> $O(n \log n)$

Points: **1** **14. Multiple Choice: CO4: How many probes are required on avera...**

Question	How many probes are required on average for insertion and successful search?
Answer	<input type="checkbox"/> 4 and 10
	<input type="checkbox"/> 2 and 6
	<input checked="" type="checkbox"/> 2.5 and 1.5
	<input type="checkbox"/> 3.5 and 1.5

Points: **1** **15. Multiple Choice: CO3: Which of the following is the correct...**

Question	Which of the following is the correct function definition for linear probing?
Answer	<input type="checkbox"/> $F(i)=1$
	<input checked="" type="checkbox"/> $F(i)=i$
	<input type="checkbox"/> $F(i)=i^2$

$$F(i)=i+1$$

16. Multiple Choice: CO3: What is the hash function used in lin...

Points: 1

Question	What is the hash function used in linear probing?
Answer	<p>H(x)= key mod table size</p> <p>H(x)= (key+ F(i2)) mod table size</p> <p><input checked="" type="checkbox"/> H(x)= (key+ F(i)) mod table size</p> <p>H(x)= X mod 17</p>

17. True / False: CO3: "In quadratic probing, if the table s...

Points: 1

Question	"In quadratic probing, if the table size is prime, a new element cannot be inserted if the table is half full."
Answer	<p><input checked="" type="checkbox"/> True</p> <p>False</p>

18. Multiple Choice: CO3: Which of the following techniques off...

Points: 1

Question	Which of the following techniques offer better cache performance?
Answer	<p>Quadratic probing</p> <p><input checked="" type="checkbox"/> Linear probing</p> <p>Double hashing</p> <p>Rehashing</p>

Points: 1

19. Multiple Choice: CO3: Which scheme uses a randomization approach...

Question	Which scheme uses a randomization approach?
Answer	hashing by division
	hashing by multiplication
	<input checked="" type="checkbox"/> universal hashing
	open addressing

Points: 1

20. Multiple Choice: CO5: "Assuming value of every weight to be..."

Question	"Assuming value of every weight to be greater than 10, in which of the following cases the shortest path of a directed weighted graph from 2 vertices u and v will never change?"
Answer	add all values by 10
	subtract 10 from all the values
	<input checked="" type="checkbox"/> multiply all values by 10
	in both the cases of multiplying and adding by 10

Points: 1

21. Multiple Choice: CO5: What is the maximum possible number o...

Question	What is the maximum possible number of edges in a directed graph with no self loops having 8 vertices?
Answer	28

64

256

 56


22. Multiple Choice: CO5: "With V (greater than 1) vertices, how...

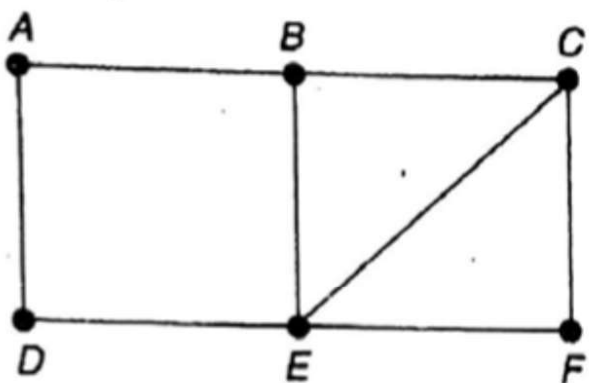
Points: 1

Question	"With V (greater than 1) vertices, how many edges at most can a Directed Acyclic Graph possess?"
Answer	<input checked="" type="checkbox"/> $(V*(V-1))/2$ <input type="checkbox"/> $(V*(V+1))/2$ <input type="checkbox"/> $(V+1)C2$ <input type="checkbox"/> $(V-1)C2$



23. Multiple Choice: CO5: Consider the connected graph: Calc...

Points: 1

Question	<p>Consider the connected graph:</p>  <p>Calculate the distance between A and F</p>
Answer	2

3

4

No path from A to F

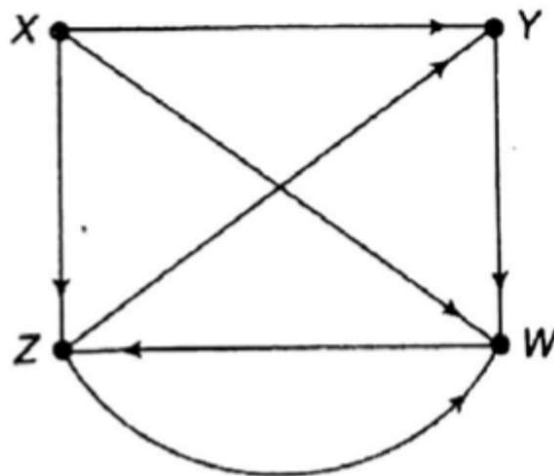


24. Multiple Choice: CO5: Consider the given directed graph ...

Points: **2**

Question

Consider the given directed graph



calculate in -degree and out degree for node Y.

Answer

1, 2

2, 1

0, 2

1, 0



25. Multiple Choice: CO5: The min number of edges required to C...

Points: **1**

Question

The min number of edges required to create a cyclid graph of n vertices is

Answer n-1

n

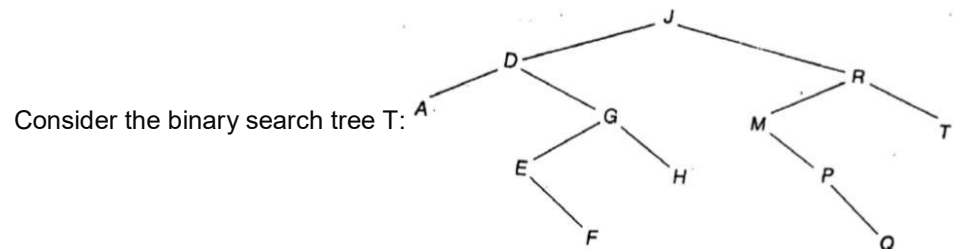
n+1

2n

26. Multiple Choice: CO4: Consider the binary search tree T: P...

Points: **3**

Question



Perform following operations in it

1. delete node M

2. then delete node D

what will be the in order traversal of updated binary search tree

Answer

A,E,F,G,H,J,P,Q,R,T

J,E,R,A,G,P,T,F,H,Q

A,E,F,H,G,P,Q,R,T,J

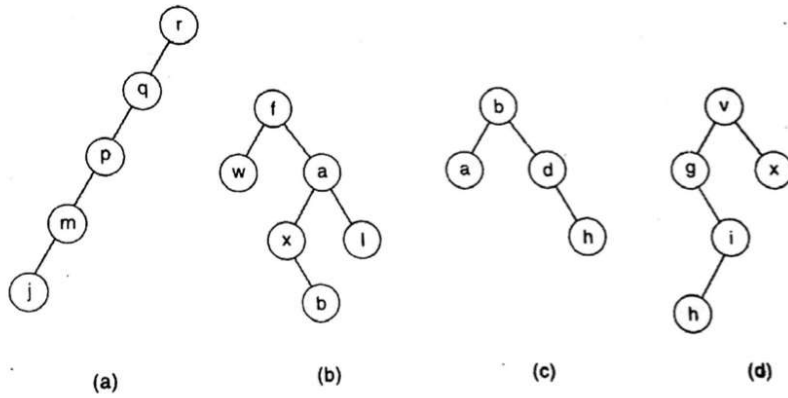
A,E,F,G,H,P,Q,R,T,J

27. Matching: CO4: Do the correct matching

Points: **4**

Question

Do the correct matching

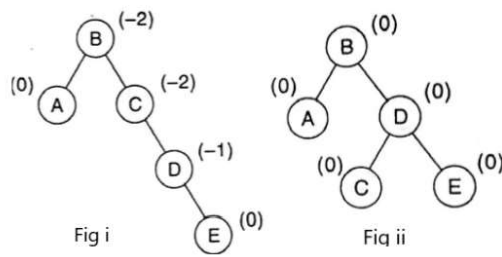


Answer	Match	Question Items	Answer Items
A. -	A. (a)	A. Skewed binary search tree	
B. -	B. (b)	B. Binary tree	
C. -	C. (c)	C. AVL search tree	
D. -	D. (d)	D. Binary search tree	

28. Multiple Choice: CO4: Insert following letter into AVL search...

Points: 2

Question Insert following letter into AVL search tree
A,B,C,D,E
The output will be:



Answer fig i
 fig ii
 both fig i and ii are incorrect

Points: 5

29. Short Answer: CO4: Consider for binary tree: preorder: ...

Question	Consider for binary tree: preorder: A,B,C,D,E,F,G,H,J,K,L,M,P,Q,N Inorder: C,D,E,B,G,H,F,K,L,P,Q,M,N,J,A Write post order sequence
Answer	E,D,C,H,G,Q,P,N,M,L,K,J,F,B,A

30. Multiple Choice: CO4: In the following 4-way search tree,&n...

Points: 5

Question	In the following 4-way search tree, trace the tree after deletion of i. U and then ii. M . What will be the last leaf node.
Answer	W Y Z
	<input checked="" type="radio"/> Y Z
	<input type="radio"/> C D
	<input type="radio"/> Z

31. Multiple Choice: CO1: . can be invoked like a normal functi...

Points: 1

Question	. can be invoked like a normal function without the help of any object.
Answer	constant member function

private member function

static member function

friend function



Points: 1

32. Multiple Choice: CO2: .. allows memory dumping on a bit by bit basis from one object to another

Question	.. allows memory dumping on a bit by bit basis from one object to another
Answer	<input checked="" type="checkbox"/> Shallow Copy
	Deep Copy
	Inheritance
	Copy constructor



Points: 1

33. Multiple Choice: CO1: " allows us to group a set of global classes, objects and/or functions under a specific name."

Question	" allows us to group a set of global classes, objects and/or functions under a specific name."
Answer	Storage Classes
	Global variable
	<input checked="" type="checkbox"/> Namespace
	None of these



Points: 1

34. True / False: CO2: "In nested try blocks, there is no ne...

Question "In nested try blocks, there is no need to specify catch handler for inner try block. Outer catch handler is sufficient for the program."

Answer True
 False

Points: 1

35. Multiple Choice: CO4: "Insert the following data in an AVL

...

Question "Insert the following data in an AVL tree and mention which rotation will be performed to balance the tree: 13,16,10,6,52,3 12"

Answer Left Rotation

 Right Rotation

Left Right Rotation

Right Left Rotation

Points: 1

36. Multiple Choice: CO2: "To delete a dynamically allocated ar...

Question "To delete a dynamically allocated array named a , the correct statement is"

Answer delete a;

 delete []a;

delete a[0];

delete [0]a;

Points: 1

37. Multiple Choice: CO1: "While declaring a static member in C...

Question	"While declaring a static member in class, which statement is true?"
Answer	<p>a static member can be a public member</p> <hr/> <p>a static member can be a private member</p> <hr/> <p>a static member can be a protected member</p> <hr/> <p><input checked="" type="checkbox"/> All of these</p>

38. Multiple Choice: CO2: "While using an object as a function

Points: **1**

...

Question	"While using an object as a function argument, a copy of the entire object is passed to the function in .. method."
Answer	<p><input checked="" type="checkbox"/> pass-by-value</p> <hr/> <p>pass-by-reference</p> <hr/> <p>pass-by-variable</p> <hr/> <p>pass-by-function</p>

39. Multiple Choice: CO2: A file in C++ can be opened using:

Points: **1**

Question	A file in C++ can be opened using:
Answer	<p>constructor of the appropriate class</p> <hr/> <p>open() function</p> <hr/> <p><input checked="" type="checkbox"/> Both of these</p> <hr/> <p>None of these</p>

40. Multiple Choice: CO1: State whether...

Points: 2

Question

State whether the following statements are True or False about the characteristics of static data members.

- i) Only one copy of a static member is created for the entire class and is shared by all the objects of that class, no matter how many objects are created.
- ii) The static member variable is visible only within the class, but its lifetime is the entire program.

Answer



i-True, ii-True

i-False, ii-True

i-True, ii-False

i-True, ii-True

41. Multiple Choice: CO1: What Will be ...

Points: 2

Question

What Will be the output of the following program?

```
#include <iostream>
using namespace std;
class Test
{ public: int x;
    mutable int
    y; Test()
        { x = 4; y = 10; }
};
int main()
{ const Test t1;
    t1.x = 8;
    cout << t1.x;
    t1.y = 20;
    cout << t1.y;
    return 0; }
```

Answer

x=4, y=10

x=8, y=20

x=4, y=20



compilation error

42. Multiple Choice: CO1: what is the o...

Points: 2

Question

what is the output of following code?

```
#include <iostream>
using namespace std;
static int sum=50;
int main()
{
    for (int i = 0; i < 5; ++i)
        { sum = sum+i; }
    cout << sum << endl;
    return 0; }
```

Answer

50

10



60

Undefined value

43. Multiple Choice: CO1: What is the o...

Points: 4

Question

What is the output of the following code?

```
#include <iostream>
using namespace std;
class Demo
{ public:
    int *ptr;
    int getLength( void );
    Demo( int len );
    Demo( const Demo
&obj); ~Demo(); };
    Demo::Demo(int len)
    { cout << "Normal constructor allocating ptr" <<
endl; ptr = new int;
    *ptr = len;
    }
    Demo::Demo(const Demo &obj)
    { cout << "Copy constructor allocating ptr." <<
endl; ptr = new int;
    *ptr = *obj.ptr;
    }
    Demo::~~Demo(void)
    {cout << "Freeing memory!" << endl;
delete ptr;
    }
    int Demo::getLength( void )
    { return *ptr; }
```

```
void show(Demo obj)
{ cout << "Length of Demo : " << obj.getLength() << endl;
} int main()
{ Demo demo1(10); Demo
  demo2 = demo1;
  show(demo1);
  show(demo2);
  return 0; }
```

Answer

Normal constructor
allocating ptr
Copy constructor
allocating ptr.
Length of line : 10
Freeing memory!
Freeing memory!

Normal constructor
allocating ptr
Copy constructor
allocating ptr.
Length of line : 10
Freeing memory!

Normal constructor
allocating ptr
Copy constructor
allocating ptr.
Length of line : 10



Normal constructor
allocating ptr
Copy constructor
allocating ptr.
Copy constructor
allocating ptr.
Length of line : 10
Freeing memory!
Copy constructor
allocating ptr.
Length of line : 10
Freeing memory!
Freeing memory!
Freeing memory!

44. Multiple Choice: CO1: What is the o...

Points: **2**

Question

What is the output of the following code?

```
#include<iostream>
using namespace std;
{ int a = 6;
  int &n =
  a; n=a++;
  a=n++;
  cout<<endl;
}
```

Answer

6,8

7,6

6,7



None of these

45. Multiple Choice: CO1: What is the o...

Points: **2**

Question

What is the output of the following code?

```
#include<iostream>
using namespace std;
int main()
{ int a=9,x;
  x = ++a * --a;
  cout<<++a<< " " << a++ << " " << x <<endl;
}
```

Answer

10, 8, 100

11, 10, 90



11, 9, 81

11, 11, 100

46. Multiple Choice: CO1: #include<iostream> using names...

Points: **2**

Question


```
#include<iostream>
using namespace std;
int main()
{
char s1[]="HELLO STUDENTS" , s2[]="HELLO STUDETNS" ;
int Z=(s1==s2);
if(Z)
cout<<Z;
else
cout<<Z;
}
```

Answer 0 1 Error None 47. Multiple Choice: CO1: what is the o...Points: **2****Question**

what is the output of following code?

```
#include<iostream>
using namespace std;
int hello(int a, int b=2)
{int r;
r = a*b;
return r;
}
int main()
{ Cout<<hello (6) <<" , "<<hello (2, 3) ;
}
```

Answer 6, 12 12, 6

2, 3

6, 3

48. Multiple Choice: CO2: What will be ...

Points: 3

Question

What will be the output of the following program?

```
#include<iostream>
using namespace std;
class student
{ public :
    int marks;
    void disp()
        { cout<<"its base class";}
};
class topper:public student
{public :
    void disp()
        { cout<<"Its derived class"; }
};
int main()
{ student s;
  topper t;
  s.disp();
  t.disp();
}
```

Answer

Its base classIts base
class



Its base class is
derived class

Its derived class is
base class

Its derived class is
derived class

49. Multiple Choice: CO2: What will be ...

Points: **2**

Question

What will be the output of the following program?

```
#include<iostream>
using namespace std;
int main()
{
    try
        {throw 5;}
    catch (...)
        {cout << "Default Exception";}
    catch (int arg)
        {cout << "Int Exception";}
    return 0;}

```

Answer

Default Exception

Int Exception



Compiler Error

None of the above

50. Multiple Choice: CO2: What will be ...

Points: **3**

Question

What will be the output of the following program?

```
#include <iostream>
using namespace std;
class base
{
public:
    virtual void show()=0;
    void display()
        {cout<<"Base class"<<endl;}
};
class derived:public base
{public:
    void display()
        {cout << "Derived class" <<endl;}
};
int main()
{
    derived obj;
    obj.display();
    return 0;
}
```

Answer

Derived class

Base class



Compile time error

None of these



51. Multiple Choice: CO2: "Which of the following statement(s)

Points: 1

...

Question

"Which of the following statement(s) is/are true about operator overloading?

(A) In Unary Operator Overloading, one argument is passed to the operator function.

(B) In Binary operator overloading two arguments are passed to the operator function."

Answer

Only (A)

Only (B)

Both (A) and (B)

None of these



52. Multiple Choice: CO2: Which among the following is the corr...

Points: 1

Question

Which among the following is the correct syntax for multiple inheritance?

Answer



```
"class student
{public:
  int marks;
}s;
class stream
{int total;};
class topper:public student, public stream{ };"
```

```
class student
{int marks;};
class stream{ };
class topper: public student{ };
```

```
class student
{int marks;};
class stream:public student{ };
```

```
class student{ };
class stream{ };
class topper{ };
```



53. Multiple Choice: CO2: Which of the following statement(s) i...

Points: **1**

Question	<p>Which of the following statement(s) is/are true about templates?</p> <p>(A) Template is a feature of C++ that allows us to write one code for different data types.</p> <p>(B) We can write one function that can be used for all data types including user defined types.</p> <p>(C) We can create one class or structure that can be used for all data types including user defined types.</p> <p>(D) Template is an example of compile time polymorphism.</p>
Answer	<p>(A) and (D)</p> <hr/> <p>"(A) , (B) and (D)"</p> <hr/> <p>"(A), (B), and (C)"</p> <hr/> <p><input checked="" type="checkbox"/> All of these</p>

54. Multiple Choice: CO2: Encapsulation is ..

Points: 1

Question	Encapsulation is ..
Answer	<input checked="" type="checkbox"/> The process of binding together the data and functions in a class. <input type="checkbox"/> The process of hiding the internal implementations and displaying only the required details. <input type="checkbox"/> The process of creating and initializing the default constructor automatically <input type="checkbox"/> The process of using the private and protected members outside the class.

 55. Multiple Choice: CO1: Which among the following best define...

Points: 1

Question	Which among the following best defines static variables members?
Answer	<input type="checkbox"/> Data which is allocated for each object separately <input checked="" type="checkbox"/> Data which is common to all the objects of a class <input type="checkbox"/> Data which is common to all the classes <input type="checkbox"/> Data which is common to a specific method

 56. Multiple Choice: CO2: Which among the following best descri...

Points: 1

Question	Which among the following best describes the Inheritance?
Answer	<input type="checkbox"/> Copying the code already written <input type="checkbox"/> Using the code already written once

Using already defined functions in programming language

Using the data and functions into derived segment



Points: 1

57. Multiple Choice: CO1: Which among the following is wrong syntax...

Question	Which among the following is wrong syntax related to static data members?
Answer	<input checked="" type="checkbox"/> <code>className : dataType -> memberName;</code> <code>className :: staticDataMember;</code> <code>dataType className :: memberName =value;</code> <code>static dataType memberName;</code>



Points: 1

58. Multiple Choice: CO1: Which of the following is not a file ...

Question	Which of the following is not a file mode in C++ ?
Answer	<code>ios::ate</code> <input checked="" type="checkbox"/> <code>ios::octal</code> <code>ios::binary</code> <code>ios::nocreate</code>



Points: 1

59. Multiple Choice: CO1: which statement is true in case of co...

Question	which statement is true in case of constructor?
-----------------	-------------------------------------------------

Answer constructor must be declared in public part otherwise result will be error.

Constructor cannot be virtual.

"They do not have return types, not even void"

All of these

60. Multiple Choice: CO1: What is the o...

Points: 3

Question

What is the output of the following program?

```
#include<iostream>
using namespace std;
int main()
{
    char s[] = "Fine";
    *s = 'N';
    cout<<s<<endl;
}
```

Answer Fine

Nine

Runtime Error

Compile time Error

Select: All None Select by Type: - Question Type - v

Delete and Regrade

Points

Update and Regrade

Hide Question Details

← OK