东 南 大 学 考 试 卷（ A 卷）

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| 课程名称 | 程序设计基础及语言II（双语） | | 考试学期 | 19-20-3 |  |
| 适用专业 | 计算机大类 | 考试形式 | 半开卷  可带一本教材 | 考试时间长度 | 笔试  60分钟 |
| 机试  120分钟 |

总分：**100分**

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| **试题** | **得分** | **评阅人** |
| 第一部分：笔试 |  |  |
| 第二部分：机试 |  |  |
| 成绩合计： |  |  |

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| 课程名称 | 程序设计基础及语言II（双语） | | 考试学期 | | 19-20-3 | | 卷面 | 40分 | |
| 适用专业  学号 姓名  密  封  线 | 计算机大类 | 考试形式 | | 半开卷  可带一本教材 | | 考试时间长度 | | | 笔试  60分钟 |

仅 允 许 携 带 课 程 指 定 教 材

请将答案写在答题纸上

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| 第一部分 笔试  Note: All answers must be written on answer sheet!  I Read the programs as follows, and please write down the output of them：（20 score）  1．What is the output of the following? (4 score)  #include <iostream>  using namespace std;  #include<stack>  int main()  {  stack<int> stack1;  for (int i = 0; i < 10; i++)  {  if (i % 3)  {  stack1.push(i);  cout << i << '\t';  }  }  cout << endl;  while (!stack1.empty())  {  cout << stack1.top() << '\t';  stack1.pop();  }  return 0;  }  2．What is the output of the following? (4 score)  class Base {  int x;  public:  Base(int x1): x(x1){cout << "Base object is created! "<< x << endl;}  virtual void f() { cout<<x<<endl;}  ~ Base(){ cout << "Base object is destroyed!"<< endl; }  };  class Derived : public Base {  int y;  public:  Derived(int x1, int y1) : Base(x1), y(y1) { cout << "Derived object is created! " << y << endl; }  void f() { Base::f(); cout<<y<<endl; }  ~ Derived(){ cout << "Derived object is destroyed!"<< endl; }  };  int main()  {  Base a1(1), a2(2);  Derived b1(3,4);  Base \*a[3]={&a1,&a2,&b1};  for (int i=0;i<3;++i)  {  cout<<"第 "<<i+1<<" 个对象 ";  a[i]->f();  }  }  3．What is the output of the following? (4 score)  #include <iostream>  using namespace std;  class A {  public:  A(){cout << ".";}  ~A(){cout << ".";}  };  class B : public A {  A \_a;  public:  B(){cout << ".?";};  ~B(){cout << "!.";};  };  B b;  int main() { }  4．What is the output of the following? (4 score)  #include <iostream>  #include <string>  using namespace std;  class A {  static string s;  static int pos;  friend ostream& operator<<(ostream& \_o, A& \_a);  public:  A& operator()();  };  string A::s = "Nanjing";  int A::pos = 0;  A& A::operator()()  {  cout << s[++pos];  return \*this;  }  ostream & operator<<(ostream& \_o, A& \_a)  {  \_o << \_a.s[++\_a.pos];  return \_o;  }  int main()  {  A a, b;  a()();  b()();  cout << a << b;  }  5．What is the output of the following? (4 score)   |  |  | | --- | --- | | #include <iostream>  #include<string>  using namespace std;  class zero\_denominator  {  public:  void disp\_msg()  {  cout << "Zero denominator." << endl;  }  };  class gossip  {  public:  gossip(string m)  :msg(m)  {  cout << msg << " in." << endl;  }  ~gossip()  {  cout << msg << " out." << endl;  }  private:  string msg;  }; | void func1(int den)  { gossip gsp2("func1");  if (den != 0)  {  cout << 3 / den << endl;  }  else  {  throw zero\_denominator();  }  }  int main()  {  gossip gsp1("Main");  int int\_array[2] = { 3,0 };  try  {  for (int i = 0; i <2; i++)  {  func1(int\_array[i]);  }  }  catch (zero\_denominator& den\_exp)  {  den\_exp.disp\_msg();  }  return 0;  } // end main |   II．To fill in the following blanks to complete program segments. （20 scores）   1. (10 scores)Filling the blanks of the program. Suppose we want to read a line of text from a file, change all letters (only alphabet letters) to capital and print it on the screen.  |  |  | | --- | --- | | #include<iostream>  #include <\_\_\_\_(1)\_\_\_>  using namespace std;  int main()  {  ifstream inFile("text1.txt", ios::in);  if (\_\_\_(2)\_\_\_)  {  cerr << "Open failed." << endl;  exit(1);  }  char \_\_\_\_\_(3)\_\_\_\_\_;  inFile.get(msg, 200, '\n'); | int i = 0;  while (\_\_\_\_\_\_(4)\_\_\_\_)  {  if ((msg[i] <= 'z') && (msg[i] >= 'a'))  {  \_\_\_\_(5)\_\_\_\_;  }  ++i;  }  cout << msg << endl;  return 0;  } |  1. (10 scores)Filling the blanks to make the program successful. (10scores)——双向链表操作   #include <iostream>  using namespace std;  template <typename T>  class Node  {  （1） class List;  public:  Node( )  {  data = 0;  pNext = NULL;  pLast = NULL;  }  private:  T data;  Node \* pNext;  Node \* pLast;  };  template <typename T>  class List // Define a doubly linked list  {  private:  Node<T> \* pHead;  Node<T> \* pTail;  int length;  public:  List():length(0),pHead(NULL),pTail(NULL){}    ~List()//清空  {  Node<T> \* pos = pHead;  while (pHead != NULL)  {  pHead = pHead -> pNext;  delete pos;  pos = pHead;  }  pHead = NULL;  pTail = NULL;  }  void traverseList()//正向遍历  {  Node<T> \* pos = pHead;  while (pos != NULL)  {  cout << pos->data << endl;  \_\_\_（2）\_\_\_ ;  }  cout << endl;  }  List<T>& InsertAtTail(T num)//插入数据  {  Node<T> \* temp = new Node<T>( );  temp->data = num;  if (pHead == NULL)  {  pHead = temp;  pHead->pLast = NULL;  pTail = pHead;    }  else  {  temp->pNext = NULL;  \_\_\_（3）  pTail->pNext = temp;  pTail = temp;  }  length++;  return \_\_\_（4） ;  }    bool RemoveElement(int value)  // Delete the node corresponding to the specified value, if not found, return false  {  if (pHead == NULL) return false;  bool isDeleted = false;  Node<T> \*pos = pHead;  while (pos != NULL)  {  if (pos->data == value)  {  if (pos == pHead)// if the head element of the linked list matches value  {  pHead = pHead->pNext;  pHead->pLast = NULL;  delete pos;  pos = pHead;  }  else if (pos->pNext != NULL)//if the middle element of the linked list  //matches value  {  \_\_\_（5） ;  pos->pNext->pLast = pos->pLast;  Node<T> \*temp = pos->pNext;  delete pos;  pos = temp;  }  else if (pos->pNext == NULL)// if the tail element of the linked list  matches value  {  pos->pLast->pNext = NULL;  delete pos;  }  length--;  isDeleted = true;  }  else  pos = pos->pNext;  }  return isDeleted;  }  };  void main()  {  List<int> list  list.InsertAtTail(1).InsertAtTail(2).InsertAtTail(6).InsertAtTail(3).InsertAtTail(4);  cout << "The output of initialization:" << endl;  list.traverseList( );  cout << endl;  list.RemoveElement(3);  cout << "The output after remove 3:" << endl;  list.traverseList( );  }  Output:  The output of initialization:  1  2  6  3  4  The output after remove 3:  1  2  6  4  东 南 大 学 考 试 卷（ A 卷）   |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 课程名称 | 程序设计基础及语言II（双语） | | 考试学期 | | 18-19-3 | | 卷面 | 60分 | | | 适用专业 | 计算机大类 | 考试形式 | | 半开卷  可带一本教材 | | 考试时间长度 | | | 机试  120分钟 |   仅 允 许 携 带 课 程 指 定 教 材  第二部分 机试  要求：   * 1. 在本地D：或E：盘中，建立自己的文件夹，用来完成程序的编写和调试。   2. 建议：第一题Project(项目名)为Pro1，第二题Project(项目名)为Pro2，以此类推。   III. To write and test programs according to the requirements（60 scores）  1. Complete the definition of class Log to make main function correct output. Note: to use dynamic memory allocation technique. The C++ standard libraries for string are not allowed to use. (20 scores)   |  |  | | --- | --- | | #include <iostream>  using namespace std;  class Log  {  public:  Log(int , char \*);  int SearchSubStr( char \* str);  ~Log( );  …  private:  int id;  char \* info;  int length;  }; | void main()  {  Log log1(1, "Every thing is OK!");  Log log2(2, "It has a problem!");  Log log3(3, "Every thing is OK!");  if (log1 == log3)  cout << "log1 == " << "log3" << endl;  if( log1 != log2)  cout << "log1 != " << "log2" << endl;  cout << log1;    int index = log1.SearchSubStr("thing");  if (index > 0)  cout << " Find the sub string, and the index is " << index<<endl;  else  cout << "Do not find the sub string.\n";  } |   **Output:**  log1 == log3  log1 != log2  id is 1, and info is ' Every thing is OK! '  Find the sub string, and the index is 7  2. Please complete the implementation of shopping list class to make main function correct output.  Note: Refer to the following code and Don’t add or delete any data member in the classes.   |  |  | | --- | --- | | #include <iostream>  using namespace std;  class Book {  private:  int id;  double price;  public:  Book(int i = 0, double p = 0){  id = i;  price = p;  }  };  class Date {  private:  int year, month, day;  public:  Date() {  cout << "Default constructor of Date\n";  year = 2020; month = 8; day = 24;  }  Date(int y, int m, int d)  {  cout << "Constructor of Date\n";  year = y; month = m; day = d;  }  ~Date()  {  cout << "Destructor of Date\n";  }  }; | class BookList {  private:  Date date;  int num;  Book \*list;  public:  BookList() { num = 0; list = 0; }  BookList(Book \*p, int n, Date d){  …..  }  BookList(const BookList & s):date(s.date){  …….  }  void addBook(Book t)  {  ……  }  ~BookList()  {  cout << "Destructor of BookList\n";  delete[] list;  }  };  void main(){  Book b1(1, 10), b2(2, 30);  BookList booklist\_1;  booklist\_1.addBook(b1);  booklist\_1.addBook(b2);  BookList booklist\_2 = booklist\_1;  cout<< booklist\_2;  } |   Output：  Default constructor of Date  Copy constructor  Year2020 month8 day24  Id1 price10  Id2 price30  Destructor of BookList  Destructor of Date  Destructor of BookList  Destructor of Date  3. Create a class called Rectangle (矩形) that includes two pieces of information as data members- width (type int) and height (type int). Your class should have a constructor with two parameters to initialize the two data members. Provide set and get functions for every data member, area and perimeter (周长)functions that calculates the area and perimeter of the rectangle. Provide a member function named draw to draw the rectangle’s shape (形状) with ‘\*’. Create a derived class FilledRectangle of Rectangle, it includes an extra date member- filledChar (type char) and necessary functions. The main function is given to test your class.  The output should be:  Rectangle 1  Width 6 Height 5  Area 30 Perimeter 22  \*\*\*\*\*\*  \* \*  \* \*  \* \*  \*\*\*\*\*\*  Rectangle 2  Width 5 Height 7  Area 35 Perimeter 24  \*\*\*\*\*  \*&&&\*  \*&&&\*  \*&&&\*  \*&&&\*  \*&&&\*  \*\*\*\*\*  Rectangle 3  Width 7 Height 5  Area 35 Perimeter 24  \*\*\*\*\*\*\*  \*#####\*  \*#####\*  \*#####\*  \*\*\*\*\*\*\*  #include <vector>  int main() {  Rectangle a(6, 5);  FilledRectangle b(5, 7, '&');  FilledRectangle c(7, 5, '#');  vector<Rectangle\*> rectangles;  rectangles.push\_back(&a);  rectangles.push\_back(&b);  rectangles.push\_back(&c);  for (int i=0;i<3;++i) {  cout<<"Rectangle "<<i+1<<endl;  cout<<"Width "<<rectangles[i]->getW()  <<" Height "<<rectangles[i]->getH()  <<endl;  cout<<"Area "<<rectangles[i]->area()  <<" Perimeter "<<rectangles[i]->perimeter()  <<endl;  rectangles[i]->draw();  }  }  东 南 大 学 考 试 答 题 纸　　ＡＮＳＷＥＲ　ＳＨＥＥＴ   |  | | --- | | 参考答案：  阅读1  1 2 4 5 7 8  8 7 5 4 2 1  阅读2  图片包含 鸟  描述已自动生成  阅读3  …?!...  阅读4  anjing  阅读5  Main in.  func1 in.  1  func1 out.  func1 in.  func1 out.  Zero denominator.  Main out.  填空1   1. fstream 2. !inFile 3. msg[200]={} 4. msg[i] 5. msg[i]-=32   填空2   1. template <typename T> 2. friend 3. pos = pos->pNext 4. temp->pLast = pTail 5. \*this 6. pos->pLast->pNext = pos->pNext | |