

Computer Science and Information Technology Department, UoB, Quetta
Course title: Object Oriented Programming and Design

Reappear Exam 2021

Max marks: 70

Note: Attempt all questions. Every question is of 10 marks.

Question No 1-A. Fill in the blanks

1. A _____ has the same relation to an _____ that a basic data type has to a variable of that type.
2. Member functions defined inside a class definition are _____ by default.
3. A constructor is executed automatically when an object is _____.
4. A constructor's name is the same as _____.
5. Default copy constructor is called when one object is _____ to another object.

Question No 1-B True or False?

1. Data items in a class must be private.
2. In a class you can have more than one constructor with the same name.
3. Data item declared private are visible/accessible outside class.
4. A constructor has no return type but can take arguments.
5. Default copy construct is built into all classes.

Question No 2: Define a class **Triangle which contains:**

1. 2 private data members **base** and **height** of type **int**
2. 1 constructor that takes no arguments and initialize base with 6 and height with 8
3. 1 member function **getBase** which takes input from user and store it in base
4. 1 member function **getHeight** which takes input from user and store it in height
5. 1 member function **area**, which returns the area of the triangle, (Area of triangle = base * height /2)
6. height /2)

Question No 3: Write main function that uses the class Triangle defined in Question No 2.

1. create two Triangle objects T1 and T2.
2. call getBase on T1
3. call getHeight on T1
4. call area on T1 and display it using a cout statement
5. call area on T2 and display it using cout statement

Question No 4: Given the string "str", what will be the output of following statements?

string str = "Terminal";

1. **cout << str.append("Exam");**
2. **cout << str.size();**
3. **cout << str.find("E");**
4. **cout << str.replace(0, 3, "tER");**
5. **cout << str.erase(8,11);**

Question No 5: Given the “Stack” class below, answer the following questions:

Stack class	Questions:
<pre> 1. class Stack 2. { 3. private: 4. enum { MAX = 5 }; 5. int st[MAX]; 6. int top; 7. public: 8. Stack() { top = -1; } 9. void push(int var) 10. { st[++top] = var; } 11. int pop() 12. { return st[top--]; } 13. }</pre>	<ol style="list-style-type: none"> 1. Which line number defines the constructor? 2. How many private data members are in this class? 3. What is the data type of MAX? 4. When a stack object is created what will be the value of top? 5. What will be the value of top if push is called the first time on stack object? 6. Object of class Stack can store how many elements? 7. What is the return type of pop()? 8. How many arguments push() takes? 9. Will the program through an error if more than 4 elements are pushed? 10. Will the program through an error if pop is called when value of top is -1?

Question No 6: Inherit a class “SafeStack” from the “Stack” class given in Question No 5, so that push and pop check for valid array index and program exits if array index is out of bounds.

Question No 7: write main function that declares an object “obj” of class SafeStack, and calls member function push() 3 times with values 10, 20, 30, then calls pop() 4 times.