

Test 2

Information:

- Thursday 3/23, 9:50-10:50 (I will lecture from 9:30-9:50).
- In class, closed book, closed notes, clean desk
- 10% of your final grade
- 60 minutes to complete it:
- Bring your ID card!
- NO: calculators or cell phones.
- NO: headphones/earbuds.

Test format:

100 points total:

- 12 multiple choice questions (4 points each)
 - 2 questions: write a function (PA3), design and implement a class (PA4) (~26 pts ea)
- Probably 4 total pages (2 pages front+back), maybe extra blank sheet for answers.

Content:

These lectures:

- Unit 3: Pointers and Dynamic Memory Allocation
- Unit 4: Introduction to Classes
- Multi-file Development (C++ Programming on Linux)

Sample questions:

Multiple choice:

See Top Hat:

1. Unit 3: Pointers questions 1-9
2. Unit 4 Reading Quiz Questions (13.2-3, 13.6-10, 13.12)
3. Unit 4 Peer Instruction Questions (13.2-3, 13.6-10, 13.12)
4. Unit 4, 13.1 and Multi-file Development, 5 questions

Coding questions:

1. Define a function to find the minimum value in an array, but use pointer notation rather than array notation whenever possible.
2. Write a swap function, that swaps the values of two variables in main, but use pointers instead of reference parameters.
3. Write a function that takes an array of ints and its size as arguments. It should create a new array that is the same size as the argument. It should set the values in the new array by adding 10 to each element in the original array. The function should return a pointer to the new array.

4. Write a `Circle` class that has the following member variables:
- `radius` : a double
 - `pi` : a double initialized with the value 3.14159
- The class should have the following member functions:
- `Default Constructor`. A default constructor that sets `radius` to 0.0.
 - `Constructor`. Accepts the radius of the circle as an argument.
 - `setRadius`. A mutator function for the radius variable.
 - `getRadius`. An accessor function for the radius variable.
 - `getArea`. Returns the area of the circle, which is calculated as $\text{area} = \text{pi} * \text{radius} * \text{radius}$
 - `getCircumference`. Returns the circumference of the circle, which is calculated as $\text{circumference} = 2 * \text{pi} * \text{radius}$