**Short Answer Questions Guidelines**

* Download this assessment to your local computer
* Upload your answers to your repository at the end of each period (Today & Tomorrow)
* Answer the questions using MS Word
* For each question clearly identify each of the points you are answering
* Provide complete sentences for each point with clear details and justification
* Clearly format included Java code samples as required for some questions
* Answer any 8 out of the 9 questions from the list below
* Only the first 8 questions will be marked
* Each question is worth 5 marks
* The total for this summative is 40 marks

**Short Answer Questions**

1. Describe a situation in class where one-dimensional and two-dimensional arrays were used to store and manage data. Structure your answer as follows.
   1. Summarize the work or activity you did that links to the topic.
   2. Explain specifically how the work or activity is related to the topic
   3. Provide or explain specific examples of your work. Include sample Java code.
   4. For additional marks, provide sample Java code to add, change, and delete elements of the array.
2. Describe a situation in class where code was developed to read from and write to and external file. Structure your answer as follows.
   1. Summarize the work or activity you did that links to the topic.
   2. Explain specifically how the work or activity is related to the topic
   3. Provide or explain specific examples of your work. Include sample Java code.
3. Describe a situation in class where code was developed to implement classes and objects. Structure your answer as follows.
   1. Summarize the work or activity you did that links to the topic.
   2. Explain how classes and objects are related but are also different
   3. Provide an example of a class that includes a constructor and at least one method. Include sample Java code.
   4. Explain, using your example class, how an object can be created and used. Include sample Java code.
4. Describe a situation in class where code was developed to implement private and public constants, variables and methods in a Java class. Structure your answer as follows.
   1. Summarize the work or activity you did that links to the topic.
   2. Explain the difference between making a variable “public” or “private”.
   3. Provide sample Java code for public and private constants, variables and methods.
5. Describe a situation in class where code was developed to implement a standard mathematical algorithm or to implement a specification provided by your teacher.
   1. Summarize the work or activity you did that links to the topic.

The activity that I did that me and my group had to develop code for standard mathematical algorithms was when we had to create a calculator together. What we had to do in this project was we had to create a calculator form scratch without using any of the java functions such as powers or roots. In the calculator what we did was that we had to make our own mathematical formulas/algorithms that would do things such as figure out how to do sin or exponents

* 1. Explain specifically how the work or activity is related to the topic

The work that we did is related to this topic is because we had to make code for our computers that tells them how to solve certain mathematical equations such as powers, factorials, sin, roots, ect.

* 1. Provide or explain specific examples of your work. Include sample Java code.

**import** java.util.Scanner;

**public** **class** Trigonometrycalculator {

**public** **static** **void** main(String[] args) {

Scanner sc = **new** Scanner(System.*in*);

//what this part did was it made a scanner to allow someone to put in their angle for the sin function

**double** a = 180;

**double** b = 40500;

**double** c = 4;

//what this part did is i made 3 doubles to hold the variables that i needed to actually make the mathimatical function work

System.*out*.println("Enter your number");

**double** x = sc.nextInt();

**double** d = x;

// what this part did is it would ask for the angle the person needed to use the sin function on

a = a-x;

c = c\*x;

c = c\*a;

d = d\*a;

b = b-d;

c = c/b;

// what this part did is this was that did all the math for example multiply dividing and stuff like that

System.*out*.println("x = " + c);

//this part was used to pint out the answer

}

}

What this piece of code did is it would figure out how to do the sin function. This piece of code isn’t perfect as it was only able to go close up to 180 degrees and the explanations to how the code works is in it(the green writing)

1. Describe a situation in class where code was developed to implement a graphical user interfaces (GUI). Structure your answer as follows.
   1. Summarize the work or activity you did that links to the topic.
   2. Explain specifically how the work or activity is related to the topic
   3. Provide or explain specific examples of the widgets used to implement the GUI. Include sample Java code.
   4. For additional marks, provide sample Java code to add, change, and delete elements of the widgets.
2. Explain the importance of designing reusable and partitioned code in computer programs. Structure your answer as follows.
   1. Explain the benefits of separating code into well-defined classes and objects

The benefits of separating the code into well-defined classes and objects are that It makes the code much easier to read as separate parts of the program are in different classes also makes it much easier to debug/fix the code because if they are in different classes you can find out what the problem is much faster and fix it

faster as well. Another reason why it’s better to separate code by classes is because if you need to make another program and you need a part of an old program instead of rewriting the code you can just call on the former class.

* 1. Explain the importance of having well defined interfaces (e.g. public methods)

The reason why it is important to have well defined interfaces is because if you have a messy interface it is a lot easier to make common mistakes such as typing the wrong thing without noticing and putting things in the wrong spot. Another reason why it is important to have a well-defined interface is because it will make it a lot easier to work with and if someone else is looking at your interface they will also know what is going on rather than being confused

* 1. Describe a situation in class where you implemented code based on a specification that was provided.

A situation in class where I had to implement code based on a specification that was provided was in one on our recent group projects about student records I had to implement code that made it so you could add and delete students while others had their own parts to do.

* 1. Describe a situation in class where you documented the interface and specification for code you developed.

1. Describe a situation in class where you participated in a multi-student project involving Java code. Structure your answer as follows.
   1. Summarize the work or activity you did that links to the topic.

The activity that I did where we had to participate in a multi-student project involving java code was a project where we had to make a student database that would hold up to 25 students

* 1. Explain the software development plan that was created for the project

Each of us had our own part that we had to do and at the end we would merge it all together for example my part was adding and deleting students into the database and calvin’s part was to modify the students and someone else’s part was to making the GUI and so on.

* 1. Explain how students communicated with each other regarding the status of their individual assigned tasks.

The way that students would communicate with each other regarding the status of their individual assigned tasks is we would upload all our work to github in 1 repository so we would be able to look at each other’s work and see how far everyone was and we would also just talk to each other in real life if we needed a certain thing from someone else’s program.

* 1. Explain how the code developed by different students was merged into one project
  2. Explain how industry-standard programming tools (e.g. Eclipse, GitHub) are used to support multi-student software projects.

1. Describe a situation in class where you worked independently to develop Java code. Structure your answer as follows.
   1. Explain how you used help functions and reference documentation to resolve syntax issues (coding issues) while programming. Provide specific examples.
   2. Explain how you used reference documentation to find sample code that you could use and modify implement parts of your program. Provide specific examples.
   3. Explain how you used the Eclipse environment to debug your program