Spring 2021
CSE215
Take home assignment 01, Handwritten

Question 01:

a) Write a static method to calculate f(n) recursively. Assume that there will not be any overflow, and the output will fit in 64-bit decimal number. This method takes only one integer parameter and outputs a double number. The method should be a public method so that it can be accessed from outside the class.

$$f(n) = \begin{cases} 0, if\ n \leq 0 \\ 1, if\ n = 1 \\ 3, if\ n = 2 \\ \sqrt{f(n-1)} + \sqrt[n-2]{f(n-2)}\ \ , if\ n > 2\ and\ n\ is\ even \\ (f(n-1))^{1.000001}\ ,\ \ if\ n > 2\ and\ n\ is\ odd \end{cases}$$

b) Write another static method to calculate above function iteratively using a loop. You can use an array if you want. Any other ideas are also acceptable. The parameter and return type is same as a)

c) Write a method that prints the recursive and iterative version of first 20 f(n) side by side using a printf. Ensure that every f(n) is displayed in a separate line, right aligned with at least 20 characters, and only 2 digit after decimal point is displayed.

Question 02:

Explain how java code is converted to binary output - What are the steps involved. Explain the difference between interpretation and compilation.

Submission Guideline:

1. All the answer is handwritten.
2. For question 01, compile the code first using IDE and see the output. Then write the entire code by hand in a piece of paper.
3. Write your Name, student ID and page number at the bottom of each page.
4. Write the semester and “Assignment 01” at the top of each page.
5. Submit a single .pdf file containing all the handwritten answer.
6. Submission deadline will not be extended.