**INSTRUCTIONS:**

**APPLICATION 1: FLOWCHART AND ALGORITHM**

Create an algorithm and a flowchart for the following scenario. Analyze the scenario first.

* 1. You are task to create an algorithm and flowchart in determining student’s final grade and indicate whether it is passing or failing grade. The final grade is calculated as the average of four marks.
  2. You are task to create an algorithm and flowchart in ccalculate the area of circle. To calculate the area of a circle we have used the following formula pi \* radius \* radius.

Rubrics: This will be the points on how you will be graded for Application Number **1a**, **1b**:

1. Complete and correct used of algorithms (2 pts)
2. Complete and correct used symbol for data flow (2 pts)
3. Algorithm must be simple and follow the right process. (2 pts)
4. The process used which is the computation is correct (2 pts)
5. Both are present, algorithm and flowchart. Not only that the symbols and shapes should be of the same size. ( 2pts)

**APPLICATION 2: SORTING AND SEARCHING**

1. Using Binary Search, simulate the following: make sure that you have indicated how these elements were **sorted** before you search the item 17 (10 pts)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **35** | **15** | **69** | **58** | **81** | **17** | **35** | **12** | **48** | **25** |

1. Using bubble sort, search the following using LINEAR SEARCH (10 pts each)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **11** | **25** | **67** | **30** | **23** | **15** | **17** | **16** | **20** | **23** |