|  |
| --- |
| Notes :   1. For p***roblem No. 1***, you could provide your answer ***either*** using ***hand-written*** and taking pictures of it or ***any word processing***. Subsequently, ***please combine all your solution in .pdf fil*e**. 2. For ***problem No. 2***, please ***submit your .cpp*** file. 3. The duration of this Quiz are ***180 minutes*** (***120 minutes*** duration to ***solve*** + ***60 minutes*** duration to ***submit***). 4. If you are ***late*** to submit, then your lecturer ***will not accept your submission***. 5. The quiz will be ***marked as 0***, if any ***plagiarism found***. |

1. **[40%]** Given the infix notation below :

**(((2 + 3) / 5) \* ((10 – 4) / 2) – 2) \* (((9 – 3) / 3) + 6)**

Using the infix expression above:

1. **[15%]** Draw an expression tree
2. **[5%]** Based on the expression tree, write down the postfix expression
3. **[5%]** Based on the expression tree, write down the prefix expression
4. **[15%]** Simulate the conversion from infix to postfix expression using a stack. You must show the contents of the stack and the postfix string at each step of your working.

Table 1 Precedence level

|  |  |  |
| --- | --- | --- |
| **Operator** | **Precedence** | **Associativity** |
| ^ | 4 | left to right |
| \* | 3 | left to right |
| / | 3 | left to right |
| % | 3 | left to right |
| + | 2 | left to right |
| - | 2 | left to right |
| == | 1 | left to right |

1. **[60%]** Code

**Simple Word Processor**

As a programmer, you are asked to create a simple word processing program, where you can type in words. In the case of typing a wrong word, there is an “undo” button, where the last word that you have typed will be deleted. You can also insert a word somewhere in the middle of the sentence that you have typed. At this point, you don’t need to write other function of the word processor. You have decided to use a double linked list to implement this simple word processor. Create a menu such as the following:

Simple Word Processor

1. **[10%]** Type a word at the end of the sentence
2. **[15%]** Insert a word in the middle of the sentence
3. **[10%]** Undo typing
4. **[10%]** Search for a word
5. **[10%]** Edit a specific word
6. **[5%]** Exit program (release all memory used by the program when exit program)

**Note: menu (b) will be insert a word after a specified word.**

**Example:**

|  |  |
| --- | --- |
| **Action** | **Content of stack (bottom – top)** |
| Menu (a) type “The” | The |
| Menu (a) type “fox” | The fox |
| Menu (a) type “jumps” | The fox jumps |
| Menu (b) Insert after “The”, “brown” | The brown fox jumps |
| Menu (a) type “over” | The brown fox jumps over |
| Menu (c) undo | The brown fox jumps |
| Menu (e) edit jumps, change to “runs” | The brown fox runs |

-- Good Luck --