1. Write a program to perform the following matrix multiplication using one of
the following languages: Fortran, C, C++. (10%) 
\[ C_{mn} = [A]_{ma}[B]_{np} \quad \text{where} \quad m, n, \text{and} p \text{ are integers.} \]

2. Explain the following terms in details in your words. (10%) 
   a. Artificial intelligence (AI)
   b. ADSL (Asymmetric Digital Subscriber Line)
   c. Time sharing
   d. CISC vs. RISC

3. Explain the difference between the statements (C programming language)
on the left and the statement on the right. For each group of statements,
give the final value of x if the initial value of x is 1. (15%) 
   \begin{align*}
   \text{if}(x & \geq 0) & \quad \text{if}(x & \geq 0) \\
   x & = x + 1; & x & = x + 1; \\
   \text{else if} & (x & = 1) & \quad \text{if}(x & \geq 1) \\
   x & = x + 2; & x & = x + 2;
   \end{align*}

4. What output values are displayed by the following while loop for a data
   value of 5? Of 6? Of 7? In general, for a data value of any number \( n \), what
does this loop display? (15%) 
   \begin{verbatim}
   printf("Enter an integer> ");
   scanf("%d ", &x);
   product = x;
   count = 0;
   while (count < 4) {
     printf("%dn", product);
     product = product * x;
     count++;
   }
   \end{verbatim}

5. For a given integer array, selecting an algorithm to perform sorting the
array of integers. You don’t have to write a program but please draw a
flowchart and write pseudocode for the algorithm you chosen.
   (10%)
6. The data transferred between program modules can use call by address or call by value. Please describe what is the difference of these two methods and what suitable situation it is used. (10%)

7. What is the difference of public variable and private variables? (10%)

8. Why do we have to declare the type of variables in the beginning of the program? (10%)

9. Please tell me why nearly all computer components have to equip buffer. (10%)