

1. List the main components of a computer, and briefly describe their functionality. (10%)
2. Explain the following terms: (35%)
 - a. Network computer
 - b. Extranet
 - c. DBMS
 - d. ASP
 - e. Middleware
 - f. Java
 - g. Groupware
3. Use any method you are familiar with to model the following text: (15%)

Faculty, staffs and students form the Institute of Manufacturing Engineering (IME). Every faculty member offers two courses in each semester and guides students to do research, while the staffs assist administrative work. A course may use one or more textbooks. Most of the textbooks are available in the university store. Each student is required to take at least 8 courses and write a thesis before graduation.

4. Write the algorithm of "Insertion Sort" and compute its "Best Case" and "Worst Case" time complexity. (15%)
5. Use "Linked List" to express the following function: (7%)

$$F(x) = x^4 + 3x^3 + 5x^2 + 7x + 9$$

And write an algorithm to "Print" the Linked List. (8%)

6. Draw a binary tree - BT whose inorder and preorder traversals yield the following sequence of nodes: (10%)
Inorder : EACKFHDBG
Preorder: FAEKCDFGB