1. What are the types of E-commerce?(5%) Give examples for each type. (5%)

2. (a) Find the error in the following (note: there may be more than one error): (5%)

   ```
   For (x=100, x>=1, x++)
       Printf ("%d\n",x);
   ```

   (b) How to find a solution of a linear programming using Microsoft Excel? State the steps of solution procedure. (5%)

3. Explain the function of memory cache. (5%) What are L1 cache and L2 cache?(5%)

4. Define RFID (5%), and design a tracking payment system for vehicle passing through booths on tollway systems. (5%)

5. Compare server-based architecture, client-based architectures, and client-server based architectures in terms of cost, development, interface, security, and scalability. (10%)

6. (3% each) Explain each of the following terms.

(a) spooling

(b) half-duplex

(c) database management system

(d) prototyping

(e) paging

(f) object linking and embedding

(g) end-user computing

(h) structured programming

7. (8%) List two major differences between databases and data warehouses, and justify your answer.

8. (8%) In implementing an information system, conversion is a necessary step for moving from the old system to the new developed system. The four approaches for this purpose are: direct conversion, parallel conversion, phased conversion, and pilot conversion. State the details of the four approaches and discuss their advantages and disadvantages.

9. (a) (5%) Propose an approach for estimating $\int \frac{1}{\sqrt{2\pi}} e^{-\frac{x^2}{2}} dx$ such that the difference between the estimate and the true value of $\int \frac{1}{\sqrt{2\pi}} e^{-\frac{x^2}{2}} dx$ is less than 0.0001.

(b) (5%) Write the pseudocode for your approach.