

1. Work out the numbers that represent the **string** 1001:
 - (1) Binary numbering system (2%)
 - (2) Octal numbering system (2%)
 - (3) Hexadecimal numbering system (2%)
 - (4) Decimal numbering system (2%)

2. Answer the following questions:
 - a. What are the components of a complete Internet address of a machine? (5%)
 - b. What is the difference between time-sharing and multitasking? (5%)
 - c. What is the difference between a formal parameter and an actual parameter? (5%)
 - d. How does the Internet software ensure that messages are not replayed within the Internet forever? (5%)
 - e. What is the difference among Sequential Search, Index Search, and Tree Search. (10%)

3. Explain the following terms: (28%)
 - a. **URL**
 - b. **Browser**
 - c. **Hyperlink**
 - d. **SQL**
 - e. **ERP**
 - f. **HTML**
 - g. **XML**

4. Convert the pseudocode routine (5%)


```
assign Z the value 0;  
assign X the value 1;  
while (X < 6) do  
  (assign Z the value Z + X;  
  assign X value X + 1)
```


to an equivalent routine using a **repeat** statement.

5. Write a pseudocode routine for "the binary search applied to a linked binary tree". (12%)

6. The merge algorithm is the heart of a popular sort algorithm called **merge sort**. Identify the steps of the algorithm (i.e. **merge sort**). (10%)

7. Summarize the steps performed by the CPU when an interrupt occurs. (7%)