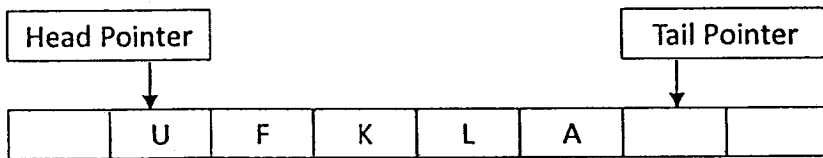


u-7-5

1. (15%) Suppose a queue implemented in a circular fashion is in the state shown in the diagram below. Draw a diagram showing the structure after the letters G and R are inserted, three letters are removed and the letters D and P are inserted.

假設一佇列以環形排列來實作，目前佇列狀態如下圖。畫出該佇列經過下列動作後的狀態：插入字母 G 和 R，移除 3 個字母，然後插入 D 和 P。

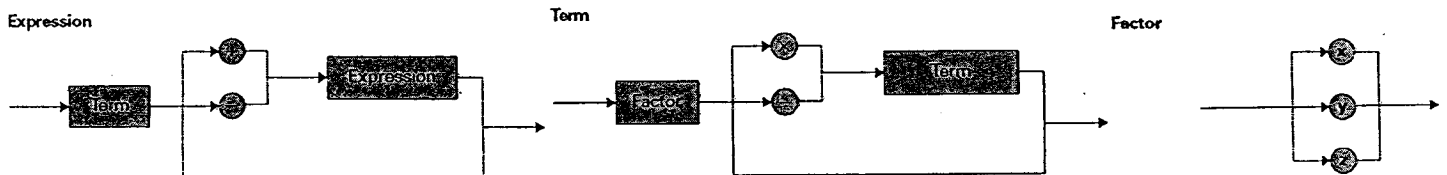


2. (15%) Draw a sequence diagram indicating that object A calls the method bb in object B, B performs the requested action and returns control to A, and then A calls the method cc in object B.

請依照題目所述畫出循序圖：物件 A 呼叫物件 B 中的 bb 程序，B 完成所要求的動作後返回控制權給 A，然後 A 呼叫 B 中的程序 cc。

3. (15%) Draw the parse tree for the expression $x \times y + y \div x$, based on the following syntax diagram.

依以下語法圖畫出運算式 $x \times y + y \div x$ 的剖析樹：



4. (15%) Apply the procedure MysteryPrint (defined below) to the value 3 and record the values that are printed.

假設傳遞參數 3 給如下程序 MysteryPrint，請問該程序的輸出為何？

```

procedure MysteryPrint (N)
  if (N > 0) then
    Print N;
    MysteryPrint (N-2);
  end if
  Print N+1;
    
```

中國文化大學 101 學年度寒假轉學招生考試

系組：資訊工程學系二年級 日期：102 年 1 月 5 日 節次：第二節

科目：計算機概論

5. (10%) A process that is waiting for a time slice is said to suffer starvation if it is never given a time slice. How, would you guess, do many operating systems avoid this problem?
系統中一個程序一直未能獲得 CPU 執行時段稱此程序處於飢餓(starvation)狀態。請問作業系統應如何避免飢餓問題?

6. (15%) Identify the errors present in the HTML document below, and modify it accordingly.

找出並更正以下 HTML 程式碼中所有的錯誤。

```
<html>
<title>First Web Page</title>
<head>
</head>
<body>
<h7>Networking Fundamentals</h7>

</html>
<body>
```

7. (15%) If the message

xyy yyz xxy xxyy

were compressed using LZW with a starting dictionary whose first, second, and third entries were x, y, and space, respectively, what would be the entries in the final dictionary?

假設以 LZW 壓縮訊息 xyy yyz xxy xxyy，若剛開始字典內容的前 3 項分別是 x, y 和空白，請問壓縮完成後字典的內容為何?