

淡江大學八十九學年度碩士班招生考試試題

系別：資訊管理學系

科目：計算機概論

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1. Define each of the following: (15%)

- (a) DMA (b) parity check (c) World Wide Web
- (d) search engines (e) public-key encryption

2. (15%)

- (a) Translate each of the following problems from base ten notation into 2's complement notation (using patterns of 6 bits), and convert any subtraction problem to an equivalent addition problem, then perform the addition. (9%)
- (1) $22-7$ (2) $22+10$ (3) $-12-13$

- (b) It is known that the ASCII code (in base ten form) of character 'A' is 65, 'a' is 97 and space is 32, what does the following ASCII message (in hexadecimal form) say? (6%)

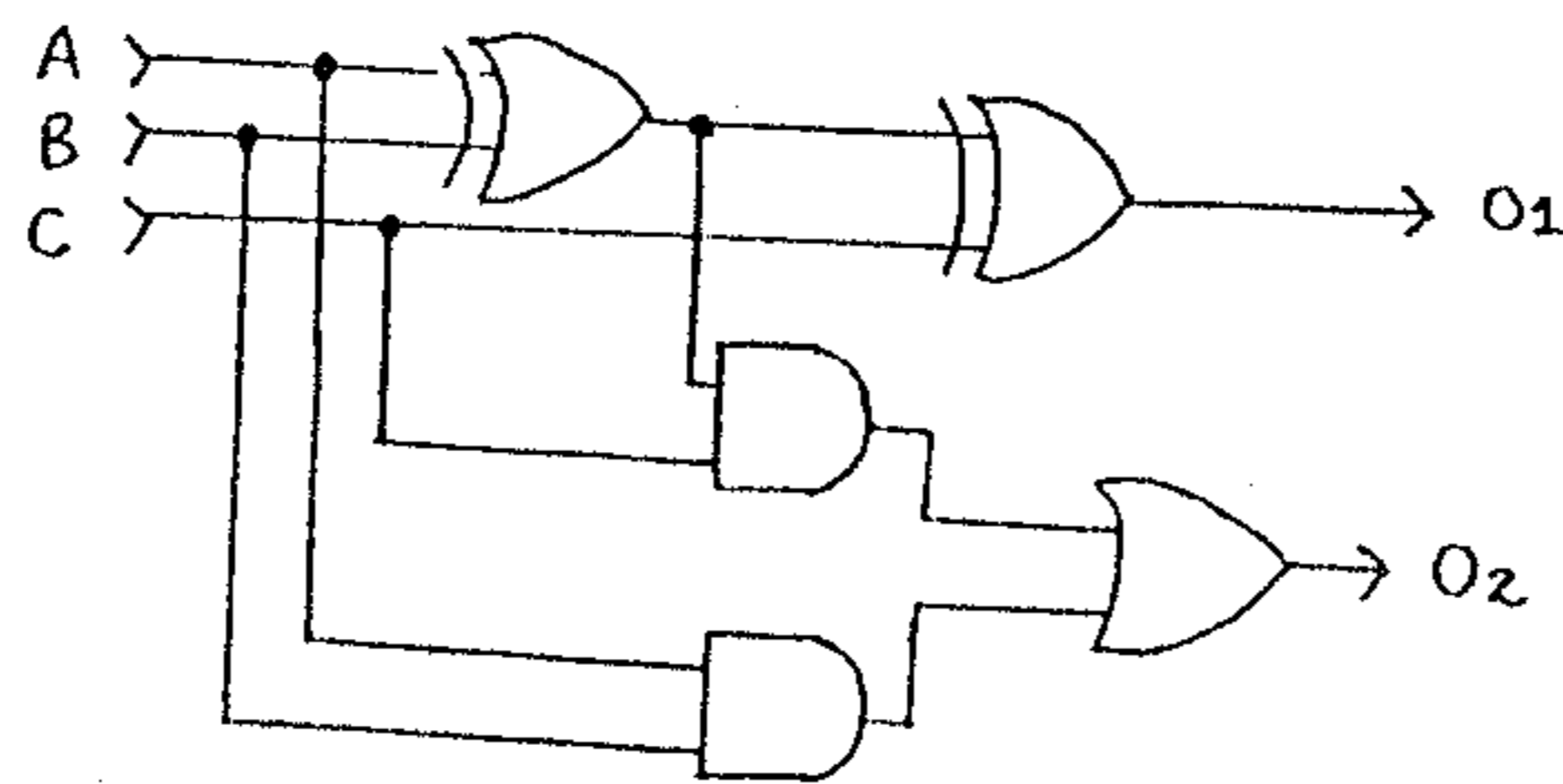
4E 6F 20 57 61 79

3. (12%)

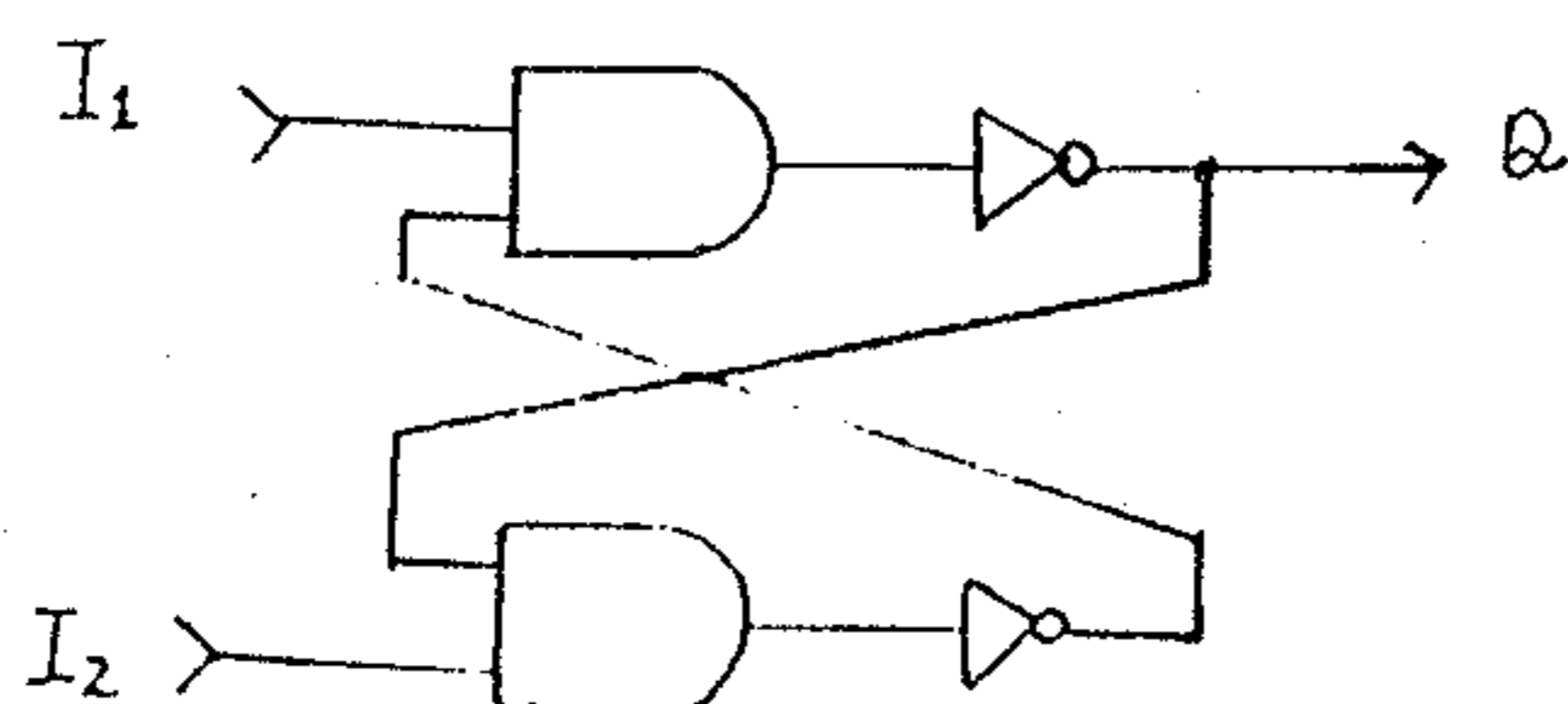
- (a) In terms of computer architectures, how a machine's throughput can be increased by pipelining? Use an example to explain your answer. (7%)
- (b) Under what conditions would the pipelining technique not be beneficial?(5%)

4. (13%)

- (a) derive the truth table of the digital logic circuit. (7%)



- (b) describe how the following flip-flop works. (6%)



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5. (12%)

- (a) Use an example to describe the procedure of process switch in a time sharing system. (7%)
- (b) If each quantum is 70 milliseconds and each process switch requires 5 milliseconds, how many processes can the machine serve in a single seconds? (5%)

6. (15%)

- (a) Refer to the following program segment, draw the flow chart. (7%)

```
assign State the value 1;  
while (State is not 3) do  
  (if (State is 1)  
    then (assign State the value 2)  
  if (State is 2)  
    then (assign State the value 3)  
  else (Declare an error;  
        assign State the value 1))
```

- (b) The following program segment is used to compute the quotient of two positive integers (assume X is the dividend and Y is the divisor). Draw the flow chart of this program. And, is the program correct? Explain your answer. (8%)

```
assign Quotient the value 0 ;  
assign Remainder the value of X ;  
repeat (assign Remainder the value of Remainder - Y;  
        assign Quotient the value Quotient + 1)  
until (Remainder < X)
```

7. The first three stages within the traditional development phase of the software life cycle are *analysis*, *design* and *implementation*. Describe the goal, activities and outputs(products) for each of the three stages. (18%)

(注意: 請務必依以下格式回答本題, 否則不給分)

goal	activities	outputs
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analysis		
design		
implementation		