

**NATIONAL UNIVERSITY OF SINGAPORE**

**CS2100 – COMPUTER ORGANISATION**

(Semester 2: AY2019/20)

**ANSWER BOOKLET**

Time Allowed: 2 Hours

**INSTRUCTIONS TO CANDIDATES**

1. This answer booklet consists of **EIGHT (8)** printed pages.
2. Fill in your Student Number below. Do NOT write your name.
3. Make sure your answers are clearly written/typed.

**STUDENT NUMBER**  
(fill in with a pen):

<b>A</b>	<b>0</b>								
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For examiner's use only		
<i>Question</i>	<i>Total</i>	<i>Marks</i>
Q1	16	
Q2	4	
Q3	10	
Q4	12	
Q5	12	
Q6	12	
Q7	14	
Q8	20	
<b><i>Total</i></b>	<b>100</b>	

Write your answers in the box/space provided.

1a. [2]

1b. [4]

1c. [6]

1d. [2]

1e. [2]

Q1:  /16

2. [4]

Q2:  /4

3a.  
[3]

3b.  
[3]

3c.  
[4]

Q3:  /10

4a. [4]

$JA =$

$KA =$

$JB =$

$KB =$

4b.(i) [4]

Number of states:

$0000 \rightarrow 1000 \rightarrow$

4b.(ii) [4]

State(1) =

State(2) =

Q4:  /12

5a. (i) [2]

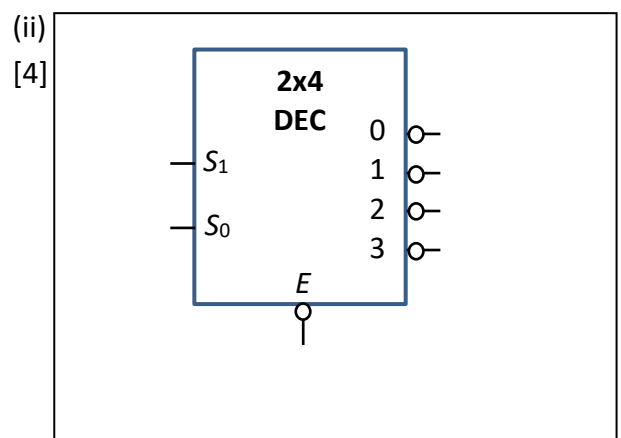
$N =$

5b. [6]

$P =$

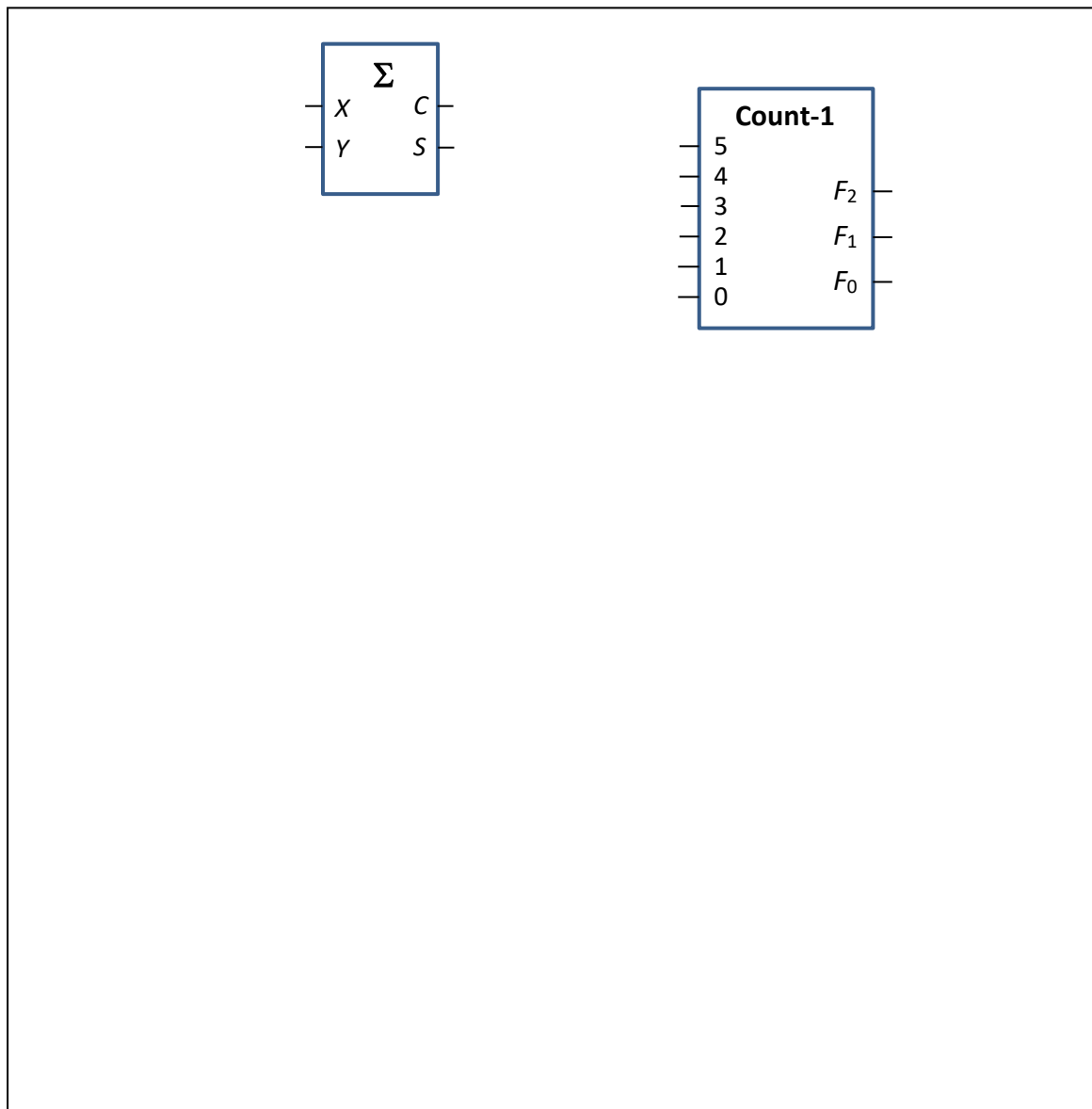
$Q =$

$R =$

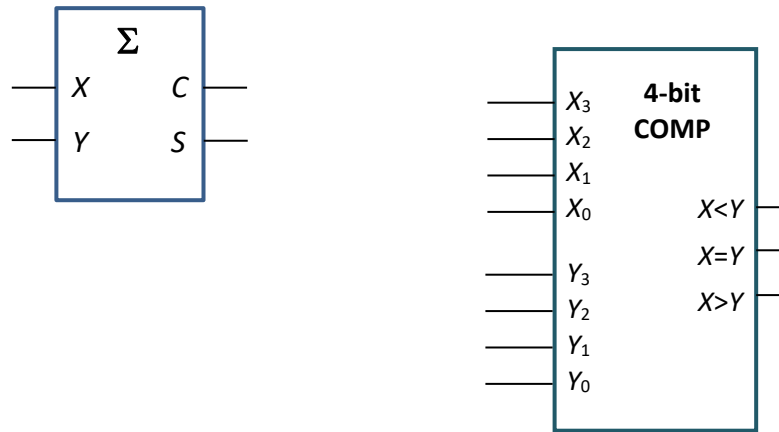


Q5:  /12

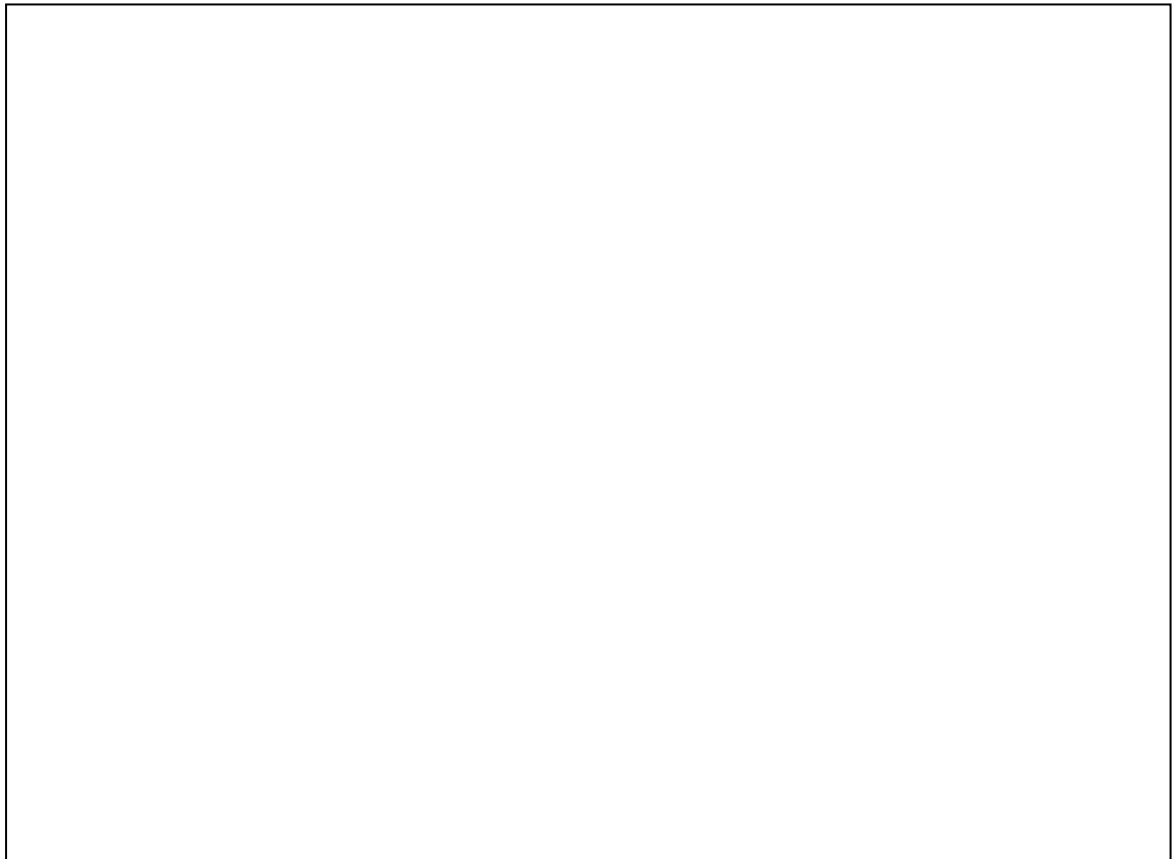
6a.  
[3]



6b.  
[5]



6c.  
[4]



Q6:  /12

7a.   
[1]

b.   
[3]

c.   
[3]

d.   
[3]

7e.   
[2]

7f.   
[2]

Q7: /14

8a. [2] Index: \_\_\_\_\_ bits;                  Offset: \_\_\_\_\_ bits

8b. [2]  $A[0] \rightarrow$  Block \_\_\_\_\_;                   $B[60] \rightarrow$  Block \_\_\_\_\_.

8c. [2] Hit rate for array A: \_\_\_\_\_;                  array B: \_\_\_\_\_.

8d. [2]  $A[0] \rightarrow$  Set \_\_\_\_\_;                   $B[60] \rightarrow$  Set \_\_\_\_\_;

8e. [2] Hit rate for array A: \_\_\_\_\_;                  array B: \_\_\_\_\_.

8f. [2]

8g. [2]

	Word0	Word1	Word2	Word3
Index 0				
Index 1				
Index 2				
Index 3				

8h. [3] Number of misses in the first iteration: \_\_\_\_\_

8i. [3] Number of misses in the second iteration: \_\_\_\_\_

Q8:   /20

=== END OF PAPER ===