

## Answer Sheet

Write all your answers on this sheet of paper. Submit only this sheet of paper at the end of the examination.

Matriculation Number: 

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The tutorial group I regularly attend is: (please circle one)

- |             |             |             |             |
|-------------|-------------|-------------|-------------|
| A. Tue 0900 | C. Tue 1100 | E. Tue 1400 | G. Wed 1400 |
| B. Tue 1000 | D. Tue 1300 | F. Tue 1500 | H. Wed 1500 |

(2 marks each. For Q6, C deserves 1 mark. For Q5, C deserves 2 marks, but will be added to your mark without marking on the paper)

- |  |   |  |   |  |   |  |   |  |   |  |   |
|--|---|--|---|--|---|--|---|--|---|--|---|
| 1. <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px; text-align: center;">E</td></tr></table> | E | 2. <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px; text-align: center;">C</td></tr></table> | C | 3. <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px; text-align: center;">B</td></tr></table> | B | 4. <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px; text-align: center;">E</td></tr></table> | E | 5. <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px; text-align: center;">A</td></tr></table> | A | 6. <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 20px; height: 20px; text-align: center;">X</td></tr></table> | X |
| E  |   |  |   |  |   |  |   |  |   |  |   |
| C  |   |  |   |  |   |  |   |  |   |  |   |
| B  |   |  |   |  |   |  |   |  |   |  |   |
| E  |   |  |   |  |   |  |   |  |   |  |   |
| A  |   |  |   |  |   |  |   |  |   |  |   |
| X  |   |  |   |  |   |  |   |  |   |  |   |

7. (a)

2 marks for any expression that simplifies to  $L/q - L/r$ .....  
 1 mark for  $L/r - L/q$ .....  
 .....

(b)

4 marks for any expression that simplifies to  $L/q$ .  
 .....  
 .....  
 .....  
 .....  
 .....

8. (a) -1 for not including or using the wrong multiplier for each of:  
 $RTT\_DNS + 2RTT1$   
.....  
.....  
.....
- (b) -1 for not including or using the wrong multiplier for each of :  
 $RTT\_DNS + 4RTT2 + 2L/R + T\_rcv$   
.....  
(Note:  $2RTT\_DNS$  is also acceptable)  
.....  
.....
- (c) -1 for not including or using the wrong multiplier for each of :  
 $RTT\_DNS + 2RTT2 + 2L/R + T\_rcv$   
.....  
.....  
.....
9. (a)  
1 Mark for 5000  
.....
- (b)  
1 Mark for 0  
.....
- (c)  
1 Mark for retransmitting segment with seq 5000 after timeout  
1 Mark if the timer above starts after sending the first segment  
1 Mark for replying with ACK 6000  
1 Mark for indicating  $rwnd=1000$  for the ACK above.  
1 Mark for sending segment with seq 6000 after receiving the  
ACK above, unless segment with seq 6000 has been sent earlier.  
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