

## ITS413 – Quiz 4 Answers

Name: \_\_\_\_\_

ID: \_\_\_\_\_

Mark: \_\_\_\_\_ (out of 10)

### Question 1 [8 marks]

True or false (circle the most accurate answer for the statement):

- |   |             |              |
|---|-------------|--------------|
| a) In the Internet, congestion mainly occurs at hosts.  | TRUE        | <b>FALSE</b> |
| b) In the Internet, congestion mainly occurs at routers.  | <b>TRUE</b> | FALSE        |
| c) In the Internet, congestion mainly occurs at TCP destination hosts.  | TRUE        | <b>FALSE</b> |
| d) In the Internet, congestion mainly occurs at TCP destination hosts.  | TRUE        | <b>FALSE</b> |
|   |             |              |
| e) Increased congestion in the Internet leads to increased queuing delays at routers.                                   | <b>TRUE</b> | FALSE        |
| f) Increased congestion in the Internet leads to increased packet drops at routers.                                     | <b>TRUE</b> | FALSE        |
| g) If an ACK is not received when expected, a TCP source assumes the TCP receivers buffer is full.                      | TRUE        | <b>FALSE</b> |
| h) If an ACK is not received when expected, a TCP source assumes congestion is increasing in the network.               | <b>TRUE</b> | FALSE        |
|   |             |              |
| i) TCP implements error control, flow control and congestion control.   | <b>TRUE</b> | FALSE        |
| j) TCP is a connection-less protocol.   | TRUE        | <b>FALSE</b> |
| k) TCP is a connection-oriented protocol.   | <b>TRUE</b> | FALSE        |
| l) TCP is a connection-oriented protocol.   | <b>TRUE</b> | FALSE        |
|   |             |              |
| m) Flow control involves limiting the sending rate of a TCP source so that the network is not overflowed with packets.  | TRUE        | <b>FALSE</b> |
| n) Flow control involves limiting the sending rate of a TCP source so that the receiving application is not overflowed. | <b>TRUE</b> | FALSE        |
| o) Flow control involves limiting the sending rate of a TCP source so that fairness is achieved amongst applications.   | TRUE        | <b>FALSE</b> |
| p) Flow control involves limiting the sending rate of a TCP source so that the receiving host is not overflowed.        | <b>TRUE</b> | FALSE        |
|   |             |              |
| q) The number of outstanding bytes a TCP source may have is the maximum of the Advertised Window and Congestion Window. | TRUE        | <b>FALSE</b> |
| r) The number of outstanding bytes a TCP source may have is the minimum of the Advertised Window and Congestion Window. | <b>TRUE</b> | FALSE        |
| s) The number of outstanding bytes a TCP source may have is limited only by the Advertised Window.                      | TRUE        | <b>FALSE</b> |
| t) The number of outstanding bytes a TCP source may have is limited only by the Congestion Window.                      | TRUE        | <b>FALSE</b> |



Slow increase in sending rate: Additive Increase  
Fast increase in sending rate: Slow Start Phase  
Response when congestion is detected: Multiplicative Decrease  
Limits the sending rate to avoid congestion: Congestion Window