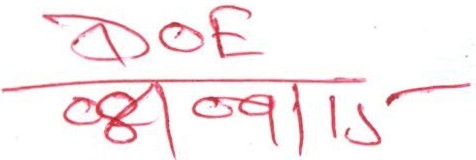
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COMPUTER NETWORKS/IT-3001/CSE &. IT/ 5th Sem/2015

# MID SEMESTER EX\_.L\MINATION

Sdhool of Computer Elnlginee:ring

HT University, Bhubaneswar -24

Time : 2 Hours Full Marks: 25

*(Answer any five questions includ ing question No. 1 which is compulsory)*

Q.l [1\*5]

1. Assume propagation delay is less than transmission delay on a link connecting host A to B. If host A starts transmission at t=O, at time equal to transmission delay, where is the first bit of the packet?
2. A base HTML page with 2 objects embed within have to be retrieved from th. e sar.ne server. Assumi.t-ig HTTP operates over non-persistent connections, how many TCP connections will be opened for retrieving ti1i.e same?
3. Why is it said that FTP sends control information "out-of-band"?
4. Suppose a user wants to acess a webpage using a given URL. The IP address of th. e HTTP server is initially unknown. What transport and application-layer protocols besides HTTP are needed LTl this scenario?
5. Suppose you want to do a transaction from a remote client to a server as fast as possible. ·what transport layer protocol will you use and Why?

Q.2 [3+2]

a) A channel has a bit rate of 4 Kbps and a propagation delay of 20 msec. For what fran1e size does the stop-an. d-wait protocol gives a channel utilization of at least 50%.

b) Explain, why SMTP can not be used at t'.!e receiver end for receiving t'.12 E-maJ.

Q.3 [3+2]

1. Using m-bit s-equence numbers, what is the maximum size of th. e send and receive windows for Selective Repeat ARQ ? In case, send-wLndow size > 2m-1 what will be the problem, discuss with exai--nple.
2. A Sender has a sliding window of size 15. The first 15 frames are sent, The first ACK received is ACK 15. What frame(s) has th. e receiver accepted and W11at frar.ne the receiver is expecting?

Q.4 [3+2]

1. Consider sendillg a packet from a source host to a destination host over a fi.x. ed route. List an\_d

describe the delay components in th. e end-to-end delay. Which of foese delays are constant and which are variable.iI1 a foced set of hardwares?

1. What should be t1.-ie maximum size of a file such that ti11e TCP sequence ;\_mrnber doesn'.: '·nap around before the file: transfer finishes? Assume a segment size of 536 bytes.

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Q.5 [3+2]

1. Suppose two hosts A and B are connected by a 1Mbps link of length 10 km. Suppose the speed of light over the link is 2 \* 10"8 mis. If a 5 MB file were to be transf erred between the hosts as back-to-back packets, how many bits will be in the link at any given time?
2. Explain the relationship among message, segment, datagram, a.n. d a frame. Also name the layers at which they are generated.
   1. Write short notes on the followings
      1. circuit-switched vs packet-switched network
      2. Flow Control vs Error Control
      3. Recursive vs Iterative DNS query
      4. Client-server vs Peer-to-Peer Architecture
      5. Persistent vs Non-Persistent Connections

[1\*5]