UNIVERSITY OF THE PUNJAB

B.S. 4 Years Program / Sixth Semester – 2019

Paper: Computer Networks (CMP)
Course Code: IT-309   Part – I (Compulsory)   Time: 15 Min. Marks: 10

ATTEMPT THIS PAPER ON THIS QUESTION SHEET ONLY.
Division of marks is given in front of each question.
This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the correct choice.   **(1x10=10)**

1. In the OSI model, what is the main function of the data link layer?
   a) node-to-node delivery   b) process-to-process message delivery
   c) synchronization   d) hop to hop delivery

2. which Topology require most extensive cabling
   a) Star   b) Bus
   c) Mesh   d) none

3. What is the size of Port address_____
   a) 16 bits   b) 32 bits
   c) 48 bits   d) 64 bits

4. Which multiplexing technique transmit Digital signal.
   a)FDM   b)TDM
   c)WDM   d)None of above

5. A Go-back-N ARQ uses a window of size 15, how many bits are needed to define the sequence number
   a) 16   b) 5
   c) 4   d) none

6. A stream of packets from a source to a destination is called data _____
   a) congestion   b) flow
   c) process   d) none

7. When data and acknowledgement are sent on the same frame ,this is called _____
   a)Back packing   b) Piggybacking
   c)Piggypacking   d) A good idea

8. In an optical fiber, the inner core is --------than cladding
   a)More dense   b)Less dense
   c)Equally dense   d)None of above

9. What is the data rate of Fast Ethernet?
   a)100Mbps   b)10Mbps
   c)1000Mbps   d)None of above

10. A periodic signal has a frequency of 10 MHz , what is the time period?
    a)0.01micro sec   b) 0.1micro sec
    c) 0.10milli sec   d) none

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B.S. 4 Years Program / Sixth Semester – 2019

Roll No. ....

Paper: Computer Networks (CMP)
Course Code: IT-309   Part – II

Time: 2 Hrs. 45 Min.   Marks: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Question No 2: Give the short answers of the following Questions?   [2x10=20]

1. What will be the phase shift in degrees corresponding to ¾ cycle delays?

2. Calculate the bit rate for the baud rate of 1000 baud under 8-PSK modulation?

3. How many Bytes will be in the Pad field of an ethernet frame if Data is of 20 bytes?

4. Determine the level of sensitivity ('High' or 'Low') of each application in the following table for given parameters.

Application	Reliability	Delay	Jitter	Bandwidth
Text Chat				
Online Gaming				

5. Using a 5 bit sequence number, what is the maximum size of the send and receive windows for each of the following protocol:
   i. Go-Back-N ARQ
   ii. Selective Repeat ARQ

6. Which of the medium access protocol has vulnerable time equal to the frame propagation time?

7. Differentiate between inter domain and intra domain routing protocol?

8. Which metrics (at least two) can be observed in order to monitor the congestion in the network?

9. What is a socket address?

10. Where ICMP protocol is used?

Question No 3: Give the answers of the following Questions?   [6x5=30]

(1) Write a note on the wireless medium used in communication?

(2) Consider a multiplexer having three input lines where each line has a data rate of 300kbps. If frame size is 9 bits. (3 bits taken from each input) then

   i.   How many frames are sent per second?
   ii. What is the output bit rate?
   iii. What is the duration of each bit in the output line

(3) Given a remainder of 111, a data unit of 10110011, and a divisor of 1001, is there any Error in data unit?

P.T.O

(4) Draw only the sender and receiver windows for a system using selective repeat ARQ, given the following?

      a. Frame 0 is sent; frame 0 is acknowledged.
      b. Frame 1 and 2 are sent; frame 1 and 2 are acknowledged.
      c. Frame 3, 4 and 5 are sent; frame 4 is acknowledged; timer for frame 5 expires.

(5) Which of the following are easy/difficult to handle in Virtual-Circuit and Datagram subnets, and why? (Answer just in one line for each case)
      i.   Address parsing time
      ii.   Congestion control
      iii. Router failure
      iv. Quality-of-service

(6) Find the Initial addresses, Final addresses and also the Number of addresses in the block if one of the addresses is 140.120.84.24/20 ?