

Total No. of printed pages = 3

**ECE 181505**

Roll No. of candidate

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4/3 / 22 2021

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**B.Tech. 5<sup>th</sup> Semester End-Term Examination**

**COMPUTER NETWORKS**

**ECE**

**(New Regulation & New Syllabus)**

Full Marks – 70

Time – Three hours

The figures in the margin indicate full marks  
for the questions.

Answer question No. 1 and any *four* from the rest.

1. Answer the following (MCQ/ Fill in the blanks) : (10 × 1 = 10)
- (i) \_\_\_\_\_ is the basic protocol of the Internet.
  - (ii) Data communication is unidirectional for \_\_\_\_\_ topology.
  - (iii) \_\_\_\_\_ waves travel in all direction in the free space.
  - (iv) \_\_\_\_\_ is a protocol by which physical machine in LAN can request to learn its IP address from a gateway servers ARP table.
  - (v) Ethernet uses an access method called \_\_\_\_\_.
  - (vi) Which of the following IP addresses can be used as (a) loop-back addresses?
    - (a) 0.0.0.0
    - (b) 127.0.0.1
    - (c) 255.255.255.255
    - (d) 0.255.255.25
  - (vii) Connection establishment in TCP is done by which mechanism?
    - (a) Flow control
    - (b) Three-Way Handshaking
    - (c) Forwarding
    - (d) Synchronization

[Turn over

- (viii) In \_\_\_\_\_, queuing packets wait in a buffer (queue) until the node (router or switch) is ready to process them.
- (a) FIFO
  - (b) Priority
  - (c) Weighted fair
  - (d) None of these
- (ix) The packet of information at the application layer is called \_\_\_\_\_
- (a) Packet
  - (b) Message
  - (c) Segment
  - (d) Frame
- (x) In an asymmetric-key cipher, the receiver uses the \_\_\_\_\_ key.
- (a) Private
  - (b) Public
  - (c) Either (a) or (b)
  - (d) Neither (a) or (b)
2. (a) Explain your understanding about OSI and TCP/IP model. Out of these which reference model is being frequently used? (6)
- (b) A bit stream 110101010 is transmitted using the standard CRC method. The generator polynomial is  $x^2 + x + 1$ . Show the actual bit string transmitted. Suppose the third bit from the left is inverted during transmission. Show that this error is detected. (5)
- (c) What is guided Transmission Media and Unguided Transmission Media? (4)
3. (a) State whether true or false- "Stop and wait ARQ is a type of Go-Back-N ARQ protocol". Justify your answer with the help of a diagram. (5)
- (b) An ISP is granted a block of addresses starting with 195.200.0.0/16 (65536 addresses) ISP needs to distribute these addresses to three groups of customers as follows :
- (i) The first group has 64 customers. Each need 128 addresses. (4)
  - (ii) The second group has 128 customers. Each needs 64 addresses. (3)
  - (iii) The third group has 128 customers, each needs 32 addresses. (3)

4. (a) Explain how routing is performed using link state algorithm? Illustrate with an example. (7)
- (b) How performance is improved in CSMA/CD protocol compared to CSMA protocol? Explain. (8)
5. (a) Explain how a connection is established and terminated in TCP. Explain the header of the UDP in detail. (10)
- (b) What is QoS? Explain any two methods to ensure QoS. (5)
6. (a) With the help of block diagram, explain the asymmetric key cryptography. (5)
- (b) How FTP handles file transfer? (5)
- (c) Explain the name resolution process in DNS. (5)
7. Write short notes on (any three): (15)
- (a) Token Bucket Algorithm
- (b) Email
- (c) PGP
- (d) LAN vs WAN
- (e) Hub and Switch.

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