

Roll No .....

## MCADD-602

### M.C.A. (Integrated), VI Semester

Examination, November 2023

### Advanced Computer Networks

*Time : Three Hours*

*Maximum Marks : 70*

- Note:** i) Attempt any five questions.  
ii) All questions carry equal marks.

1. a) What are two reasons for using layered protocols? What is one possible disadvantage of using layered protocol?  
b) A channel has a bit rate of 20 kbps. The stop and wait protocol with frame size 4500 bits is used. The delay for error detection and sending ACK by the receiver is 0.25 seconds because of a fault. Find the maximum efficiency of the channel if the destination is 30000 km away and the speed of the propagation of the signal is  $2.8 \times 10^8$  m/s. Find the decrease in efficiency due to the fault.
2. a) Describe the working of sliding window protocol. Also explain the piggy backing phenomenon.  
b) What is Hamming code and how is it used? Encode data bits 0101 into a 7-bit even parity Hamming code.
3. a) Write and explain various IEEE standards for LAN. Discuss that IEEE standard which explains the MAC schemes.  
b) An alternative to a LAN is simply a big time sharing system with terminal for all users. Give two advantages of client server system using a LAN.

4.
  - a) Explain about the TCP header and working of TCP protocol and differentiate between TCP and UDP with frame format.
  - b) Explain Dijkstra's Algorithm with an example.
5.
  - a) Why network security is important in establishing the communication?
  - b) DNS uses UDP instead of TCP. If a DNS packet is lost, there is no automatic recovery. Does this cause a problem and if so, how is it solved?
6.
  - a) What is time-to-live or packet lifetime? A large FDDI ring has 100 stations and a token rotation time of 40 m sec. The token holding time is 10 msec. What is the maximum achievable efficiency of the ring?
  - b) What is OSI Model? Explain the functions; protocols and services of each layer.
7.
  - a) Define the relationship between transmission delay and propagation delay, if the efficiency is atleast 50% in STOP N WAIT protocol.
  - b) The IP network 200.198.160.0 is using subnet mask 255.255.255.224. Design the subnets.
8. Write a short note on any two:
  - i) ISDN
  - ii) FDM
  - iii) Multimedia
  - iv) DQDB protocol

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