

MCADD-602

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

Examination, May 2023

Advanced Computer Networks

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.

ii) All questions carry equal marks.

1. a) Give a brief introduction on computer networks. Explain some of the differences between the connections less and connection oriented network.
b) A slotted ALOHA network transmits 400-bit frames on a shared channel of 400 kbps.
2. a) What is the throughput if the system (all stations together) produces?
 - i) 1000 frames per second
 - ii) 500 frames per second
 - iii) 250 frames per secondb) How does a single-bit error differ from a burst error? Explain with an example.
3. a) Given a data word $M = 1100111000001110$. Determine the CRC using the divisor 1100. 110
b) What are various IEEE standards used for networking? Explain IEEE standard 802 for LAN.
4. a) How does the switch differs from a hub? What are the functions of routers? How are congestion control and quality of service related? Explain the general principles of congestion control technique.

- b) The following is the dump of a TCP header in hexa decimal format:

05320017 00000001 00000000 500207FF 00000000

- i) What is the sequence number?
 - ii) What is the destination port number?
 - iii) What is the acknowledgment number?
 - iv) What is the window size?
5. a) What is the purpose of the Domain Name System? Discuss the three main divisions of the domain name space.
- b) Explain the SNMP protocols in detail.
6. a) What is time-to-live or packet lifetime? A large FDDI ring has 100 stations and a token rotation time of 40 msec. The token holding time is 10 msec. What is the maximum achievable efficiency of the ring?
- b) Find out window size and minimum sequence number in sliding window protocol, if Transmission delay (T_t) = 1 ms, Propagation delay (T_p) = 24.5 ms. (ms = milliseconds).
7. a) Describe the role of application layer and session layer of OSI model in detail.
- b) Assume we want to send a data from S to R and there are 2 routers in between. What will be the total time taken if total numbers of packets are 5? Data is like:
 $T_p = 0$ ms, Data size = 1000 bytes, BW = 1 mbps, Header of the packet = 100 bytes.
8. Write a short note on any two:
- i) STDM
 - ii) Basic flow control
 - iii) Email
 - iv) Bellman-Ford Algorithm
