

**009706**

**Dec. 2021**  
**B.Tech. (EIC)-7th Semester**  
**Computer Network (OE-701)**

Time : 90 Minutes]

[Max. Marks : 25

*Instructions :*

1. *It is compulsory to answer all the questions (1 mark each) of Part-A in short.*
2. *Answer any three questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

**PART - A**

1. (a) Give *two* differences between hub and switch. (1)  
(b) Which topology is the best among star, mesh or ring and why? (1)  
(c) What is the role of the TCP Checksum field? (1)  
(d) Why slotted ALOHA has higher efficiency than pure ALOHA? (1)  
(e) Differentiate between choke packet and explicit signalling congestion control mechanism. (1)

- (f) What is two node loop instability problem and how it can be rectified? (1)
- (g) Which is more reliable UDP or TCP and why? (1)
- (h) Which class of IP addressing has maximum number of hosts? (1)
- (i) A pure ALOHA network transmits 200-bit frames on a shared channel of 200 kbps. What is the throughput if the system (all stations together) produces 1000 frames per second? (1)
- (j) Computer A has 19.5 MB to send on a network and transmits the data in a burst @ 6 Mbps. The maximum transmission rate across routers in the network is 4 Mbps. If Computer A's transmission is shaped using a leaky bucket, how much capacity must the queue in the bucket hold not to discard any data? (1)

### PART - B

- 2. (a) Explain OSI model with brief description about each layer. (3)
- (b) Mention the difference between the circuit and packet switching. (2)
- 3. (a) Mention the difference between the connectionless and connection oriented transport layer protocols. (2)
- (b) Write short note on RPC. (3)

- 4. How are congestion control and quality of service related? What is the difference between open-loop congestion control and closed-loop congestion control? Explain any three closed loop congestion control mechanisms. (5)
- 5. (a) A slotted Aloha networks transmits 400 bit frames on a shared channel of 4000 Kbps. What is the throughput of the system if there are 100 nodes and one system produces 1000 frames/sec. (3)
- (b) Explain slotted ALOHA flowchart. (2)
- 6. Explain Distance vector routing with the help of an example network and what are its problem and how this problem is rectified. (5)