

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2021****Subject Code:3150710****Date:27/12/2021****Subject Name:Computer Networks****Time:02:30 PM TO 05:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

- Q.1** (a) What is topology? Explain star topology in brief. **03**  
 (b) Explain various delay which are occur in data packet transmission. **04**  
 (c) Explain functionality of Repeater, Hub, Bridge, Switch, Router and Gateway. **07**
- Q.2** (a) Write short note on Domain Name System (DNS). **03**  
 (b) What is HTTP? Differentiate its persistent and non-persistent types with request-response behavior of HTTP. **04**  
 (c) Draw the layered architecture of OSI reference model and write at least two services provided by each layer of the model. **07**
- OR**
- (c) Explain DHCP and Email in detail. **07**
- Q.3** (a) Explain Physical Address, IP address, Port Address in brief. **03**  
 (b) Compare IPv4 and IPv6. **04**  
 (c) Explain Distance Vector Routing Algorithm. **07**
- OR**
- Q.3** (a) Discuss the principles of Reliable Data Transfer. **03**  
 (b) Give difference between connection oriented and connectionless services. **04**  
 (c) What do you mean by congestion and overflow? Explain the slow-start component of the TCP congestion-control algorithm. **07**
- Q.4** (a) Explain packet fragmentation with example. **03**  
 (b) Write a short note on broadcast and multicast routing. **04**  
 (c) What is IP address? Explain sub netting with example. **07**
- OR**
- Q.4** (a) Give differences between TCP and UDP. **03**  
 (b) What is socket? Explain its importance at transport layer protocols. **04**  
 (c) Discuss transport layer multiplexing and demultiplexing concepts. **07**
- Q.5** (a) Discuss CSMA/CD Protocol. **03**  
 (b) Explain CRC code generation with example. **04**  
 (c) Describe Go Back N and Selective Repeat protocol. **07**
- OR**
- Q.5** (a) Discuss parity check for error detection in data transfer. **03**  
 (b) What do you mean by random access protocols? Explain slotted ALOHA in brief. **04**  
 (c) Draw and explain Ethernet Frame Structure. **07**

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