

Paper Id: **130739**Roll No:

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BTECH
(SEM VII) THEORY EXAMINATION 2019-20
DATA COMMUNICATION NETWORK

Time: 3 Hours

Total Marks: 70

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.



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SECTION A

1. **Attempt all questions in brief.** **2 x 7 = 14**
- A periodic signal has a bandwidth of 20Hz. The highest frequency is 60Hz. What is the lowest frequency? Draw spectrum if signal contains all frequency of same amplitude.
 - Name the four basic topologies and write an advantage of each type.
 - A code scheme has a hamming distance $d_{min} = 4$, what is the error detection & correction capabilities of this scheme?
 - What is byte stuffing and unstuffing?
 - Can a host have more than one IP address. Justify
 - Change the following IPv4 address from allotted decimal notation to binary notation.
 (i) 111.56.45.78 (ii) 221.34.7.82
 - What is error detection and correction? Also explain why is it required.

SECTION B

2. **Attempt any three of the following:** **7 x 3 = 21**
- What do you mean by protocol layering that needs to be followed to make communication bi-directional?
 - Define random access and enlist its protocols in this category.
 - Compare and contrast flow control and error control.
 - What do you understand by framing. Explain in detail
 - Write short note on cryptography.

SECTION C

3. **Attempt any one part of the following:** **7 x 1 = 7**
- Categorize the four basic topologies in term of line configuration.
 - We have two computers connected by an Ethernet hub at home. Is this a LAN or WAN? Explain the reason.
4. **Attempt any one part of the following:** **7 x 1 = 7**
- Explain the meaning of following terms related to CSMA/CD multiple access control method:
 i). Broadcast mode (ii) Collision and carrier sense.
 - Compare the reason for moving from stop-and-wait ARQ protocol to the go-back-N ARQ protocol.
5. **Attempt any one part of the following:** **7 x 1 = 7**
- Discuss the concept of redundancy in error detection & correction.
 - Enlist various IEEE standards for LAN and explain IEEE standards 802 for it in details.
6. **Attempt any one part of the following:** **7 x 1 = 7**
- Why network security is important in establishing the communication.
 - What is address resolution? Explain the contents of first byte on IP header if the IP protocol is IPv4 & header has eight bytes.
7. **Attempt any one part of the following:** **7 x 1 = 7**
- Compare TCP and UDP.
 - What is fixed routing. Compare with adaptive routing.



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