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**B. TECH**  
**(SEM VI) THEORY EXAMINATION 2022-23**  
**DATA COMMUNICATION NETWORKS**

**Time: 3 Hours****Total Marks: 100****Note:** Attempt all Sections. If require any missing data, then choose suitably.

**SECTION A**

**1. Attempt all questions in brief.****2 x 10 = 20**

- (a) Differentiate between TDMA and FDMA.
- (b) Illustrate the network goals.
- (c) Explain piggy backing.
- (d) Define Protocol.
- (e) Illustrate expansion cryptography diagrammatically.
- (f) Write two advantages of byte stuffing.
- (g) Write short note on UDP?
- (h) Differentiate between fast ethernet and Giga Ethernet.
- (i) Illustrate IP datagram.
- (j) Change the following IPv4 address from allotted decimal notation to binary notation.
  - (i) 111.63.35.58
  - (ii) 221.54.9.92

**SECTION B**

**2. Attempt any three of the following:****10x3=30**

- (a) Illustrate binary exponential back-off strategy.
- (b) Explain in details CSMA/CD with proper diagram.
- (c) Illustrate the functions and layers of OSI model.
- (d) Explain DES algorithm for cryptography in details
- (e) Illustrate distance vector algorithm with an example.

**SECTION C**

**3. Attempt any one part of the following:****10x1=10**

- (a) Elucidate the following.
  - (i) Email
  - (ii) FTP
  - (iii) Selective-Repeat ARQ
  - (iv) Bluetooth technology
- (b) Describe the IPv6 datagram format in detail. Compare it with IPv4.

**4. Attempt any one part of the following:****10x1=10**

- (a) Discuss the concept of redundancy in error detection & correction
- (b) Construct the Hamming code for the bit sequence 1100011101.

**5. Attempt any *one* part of the following: 10x1=10**

- (a) Explain ATM in details.
- (b) Explain HDLC and PPP protocols in details.

**6. Attempt any *one* part of the following: 10x1=10**

- (a) What do you understand by framing? Explain in detail.
- (b) Explain congestion and various methods to control congestion.

**7. Attempt any *one* part of the following: 10x1=10**

- (a) Write short note on
  - (i) HTTP
  - (ii) WWW
  - (iii) SMTP
- (b) Explain Controlled Access technique for multiple access in details.

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