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# INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad - 500 043

**B TECH V SEMESTER CIE-II EXAMINATIONS, FEBRUARY- 2024**

**Regulation: UG20**

**COMPUTER NETWORKS**

**Time: 2 Hours**

**(COMMON TO CSE | CSE (DS) | CSE (AI&ML) | CSIT) Max Marks: 20**

**Answer any FOUR questions**

**All parts of the question must be answered in one place only**

1. (a) What is the format of IPv4 header? Describe the significance of each field  
[BL: Understand| CO: 4|Marks: 2]
- (b) Classify the various congestion control mechanisms. Discuss about internet control message protocol.  
[BL: Apply | CO: 4|Marks: 3]
2. (a) Explain the real transport protocol of UDP and how will you calculate checksum in UDP.  
[BL: Understand| CO: 5|Marks: 2]
- (b) Design a TCP connection is using a window size of 12000 bytes and the previous acknowledgment remembrance number was 22001. It receives a segment with acknowledgment number 24001 and window size advertisement of 12000. Design a diagram to show the situation of the window before and after.  
[BL: Apply | CO: 5|Marks: 3]
3. (a) Illustrate the connection establishment and release in transport layer. Compare TCP and UDP protocols with suitable protocols.  
[BL: Understand| CO: 5|Marks: 2]
- (b) Given a DUMP of a UDP header in hexadecimal format 04 21 00 0B 00 2A E2 17, find the following:
  - i) Source port number
  - ii) Destination port number
  - iii) Length of user datagram
  - iv) Length of the data
 [BL: Apply | CO: 5|Marks: 3]
4. (a) Compare and contrast client/server with peer-to-peer data transfer over networks.  
[BL: Understand| CO: 6|Marks: 2]
- (b) List the major components in E-mail system. Outline the role of SMTP for sending and receiving messages.  
[BL: Apply | CO: 2|Marks: 3]
5. (a) Write short notes on the following:
  - i) MIME ii) Audio compression
 [BL: Understand| CO: 6|Marks: 2]
- (b) Illustrate the working principle of file transfer protocol FTP in detail with neat diagram. Distinguish FTP & HTTP.  
[BL: Apply | CO: 6|Marks: 3]

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