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2306E767

Candidate's Seat No:____

M.C.A. Sem.2, Examination
Advanced Networking
June-2025

Date : 23/6/2025, Monday
Time : 3-00 Hours]

[Max. Marks : 50

SECTION - 1

Q1 **Answer the following in brief:** **[09 marks]**

a) What is the utility of PING command?
b) What is the role of 127.0.0.1?
c) What is the use of ARP?
d) What is 802.3 standard used for?
e) What was the issue with classful IP addressing?
f) What is the role of MODEM?
g) ICMP protocol is a _____ layer protocol with reference to OSI Model.
h) What is the role of IETF?
i) Which OSI Model layer uses MAC addresses?

Q2 **Do as directed (Any 2) :** **[08 marks]**

a) Explain the role of VPN.
b) Differentiate between followings (Any 2):
   a. Differentiate between TCP and UDP.
   b. Differentiate between Circuit Switching & Packet Switching – also give examples.
   c. IP Address and MAC Address
c) In a block of addresses, we know the IP address of one host is 156.32.24.12/30. What is the first address (network address) and the last address (limited broadcast address) in this block?
d) Calculate the subnet mask where we need to create 4 subnets for class 'B' address.

Q3 **Answer the following briefly (Any 4) :** **[08 marks]**

a) Mention the role of all SMTP, POP, IMAP and MIME.
b) What is 3 way handshake in TCP?
c) Discuss the role of TTL field.
d) What is the use of public address and private address?
e) IP addresses are self-identifying – Justify the statement.

[PTO]

SECTION - 2

Q4 **Answer the following in brief:** **[09 marks]**

a) Which frequency does WiFi operate?
b) What is the Geostationary Satellite?
c) What is the use of DHCP?
d) What is the size of MAC address?
e) How is optical fibre better than wired cables?
f) What is Modulation – Demodulation?
g) What is ECN ?
h) Explain Multiplexing with example.
i) What is the purpose of Preamble in Ethernet Frame?

Q5 **Do as directed (Any 2) :** **[08 marks]**

a) Explain the working of NAT & VPN.
b) Explain the working of Router.
c) Discuss the functionalities of any 4 layers of OSI Model
d) Case Study:
Suppose 100 students want to submit their assignments (in online mode) to a Professor. Design the setup such that following properties are enforced:
   a) Must be in a Confidential way
   b) Professor can be able to authenticate that it arrived from actual student
   c) Integrity of assignment must be preserved
   d) Once the student submits assignment, student cannot deny that he did not submit the assignment but was submitted by someone else.

Q6 **Answer the following briefly (Any 4) :** **[08 marks]**

a) Discuss AIMD technique in brief.
b) State any 2 properties of HTTP protocol and explain briefly
c) Discuss how DNS works
d) What is delay ? Discuss the role of RTT
e) What is DoS and DDoS attack? How is it performed?