Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/M.TECH(ECE)/SEM-1/MCE-105A/2010-11

2010-11

COMPUTER COMMUNICATION AND NETWORKING

Time Allotted : 3 Hours | Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Attempt Question No. 1 and any *four* from the rest.

1. Answer *all* questions : 7 × 2

   a) 'SNMP is used as watchdog.' Justify.

   b) If the user wants 4 subnets in a network using class CIP address then what subnet mask user should use ? Justify your answer.

   c) What is windowing ? Explain by example.

   d) Enumerate the salient features of the Digital Interface of a standard modem.

   e) "Request time out", "Destination unreachable" —this type of message is coming when ICMP protocol is on. Justify the statement.

f) Give a focused narration on the primary functions of the Physical Layer & Data Link Layer of the OSI model.

g) Bandwidth of a transmission channel is 30 Hz and signal to noise ratio is 30 dB. What could be the maximum data rate of transmission ?

Assume, $\log_2 1001 = 10$.

2. a) What is routing ? Distinguish between static routing and dynamic routing. 1 + 2

b) Distinguish between IPV4 and IPV6. 3

c) Explain Leaky Bucket algorithm. 4

d) Explain packet filter firewall with a suitable block diagram. 4

3. a) What is IP address ? Explain Class A, Class B, Class C IP address with suitable example. 1 + 3

b) What are the difference between connection oriented and connectionless services ? 2

c) Explain RSA algorithm. 4

d) What is congestion control ? Explain congestion control with a suitable block diagram. 1 + 3

4. a) What is data encyption standard ? Explain the working principle of encryption. 1 + 2

b) Explain the advantages of encryption standard. 3

c) What are the advantages of AES over DES ? 2

d) What is cryptography ? Distinguish secret key and public key. 1 + 2

e) Explain open loop and closed loop congestion control. 3

5. a) Explain the working principle of RIP. 3

b) What is default routing ? 2

c) What is hybrid routing protocol ? 1

d) If the network add is 192.168. 10.0/26, then find out the following : 8

i) No. of subnet

ii) Subnet address

iii) Host range/subnet

iv) Broadcast address.

6. a) Justify the statement "Link utilization in the sliding window mechanism of flow control degenerates with reducing size of window. Calculate the link utilization if, Bit rate = 19.2 kbps, Frame size = 960 bits, Window size = 3, Propagation time = 0.06 second. 3 + 4

b) What is the minimum size of window for 100% utilization ? Briefly explain why a satellite data link needs larger size of window in the flow control mechanism compared to terrestrial microwave link. 2 + 5

7. a) What are the difference between TCP and UDP ? 3

   b) Explain ARP. What is the difference between ARP and RARP ? 2 + 4

   c) Explain SNMP and POP3. 2 + 2

   d) What is the IP address using for loop back test ? 1

8. Write short notes on any *two* of the following : 2 × 7

   a) FTP

   b) SIP

   c) IPV6

   d) Proxy firewall

   e) Telnet.