



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

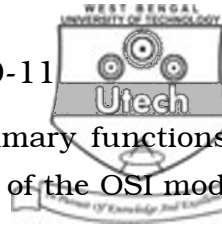
The figures in the margin indicate full marks.

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, $\log_2 1001 = 10$.

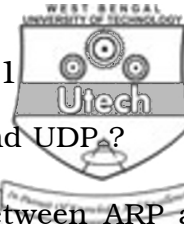
2. a) What is routing ? Distinguish between static routing and dynamic routing. 1 + 2
- b) Distinguish between IPV4 and IPV6. 3
- c) Explain Leaky Bucket algorithm. 4
- d) Explain packet filter firewall with a suitable block diagram. 4
3. a) What is IP address ? Explain Class A, Class B, Class C IP address 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 encryption 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

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



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.
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