

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 2474

Roll No.

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B.Tech.
(SEMESTER-VI) THEORY EXAMINATION, 2012-13
COMPUTER NETWORK

Time : 3 Hours]

[Total Marks : 100

SECTION – A

1. Attempt all parts. 10 × 2 = 20
- Which of the communication modes support two-way traffic but in only one direction ?
 - Explain the differences between 10 BaseT and 10 Base2 cabling.
 - Why and how is bit stuffing used in framing ?
 - In what situations contention based MAC protocols are suitable ?
 - What are the goals needed in achieving a good routing algorithm ?
 - What is a broadcast IP address ?
 - What is piggy backing ?
 - Briefly describe any two session related services.
 - List some of the major security problems that exist on the Internet.
 - What are the email gateways ?

SECTION – B

2. Attempt any three parts. 10 × 3 = 30
- What are the salient features of ISDN ? Discuss the functions of different layers in ISDN.
 - Explain performance issues for the following data link control protocols :
 - Go-back-n
 - Sliding-window



- (c) Explain briefly, the new features in IPv6 as compared to IPv4. What is the purpose of multiple headers ? Explain briefly, how IPv6 handles multiple headers.
- (d) What is public key cryptography ? List its advantages and disadvantages. Explain how RSA works.
- (e) Explain how does e-mail reach to destination. Explain in brief SMTP emphasizing the role and function of User Agent (UA) and Mail Transfer Agent (MTA).

SECTION - C

Attempt **all** parts.

10 × 5 = 50

3. Attempt any **two** parts.

- (a) Explain Guided transmission media. Mention the characteristics that distinguish optical from twisted pair or coaxial cable.
- (b) What are the key benefits of layered network ? What do you mean by Service Access Point ?
- (c) Explain degradation of signal quality due to attenuation and delay distortion.

4. Attempt any **two** parts.

- (a) Consider the use of 10 K-bit size frames on a 10 Mbps satellite channel with 270 ms delay. What is the link utilization for stop-and-wait ARQ technique assuming $P = 10^{-3}$?
- (b) Prove that for a slotted ALOHA system, the maximum throughput happens at $G = 1$ where G is the number of attempts per packet time.
- (c) How is line coding implemented in FDDI ?

5. Attempt any **two** parts.

- (a) How is subnet mask useful in IP addressing ? Explain with an example.
- (b) What are the reasons for congestion in a network ? Describe any one method for congestion control.
- (c) Discuss the problem of count to infinity associated with distance vector routing technique.

6. Attempt any **two** parts.

- (a) Explain how a session layer establishes, maintains and synchronizes the interaction between two communicating hosts.
- (b) How does the transport layer ensure that the complete message arrives at the destination and in the proper order ?
- (c) What is TCP ? Connection termination in TCP is symmetric, whereas connection establishment is not. Why ?

7. Attempt any **two** parts.

- (a) What is multipurpose Internet Mail Extension (MIME) and for what it is used ?
 - (b) Differentiate between SMTP and HTTP.
 - (c) How does FTP work ? Differentiate between passive and active FTP.
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