

UNIT – IV

8. What do you understand by routing ? What are its objectives ? What are different routing algorithms ? Discuss pros and cons of the major routing algorithms.

16

9. Explain the following :

- (a) Public Key Encryption 5
- (b) Network Security Threats 5
- (c) Congestion control mechanisms 6

Roll No.

97679

BCA 5th Semester

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DATA COMMUNICATION AND NETWORKING

Paper : BCA-303

Time : Three hours]

[Maximum Marks : 80

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Question No. 1 is compulsory. Attempt four questions by selecting one question from each Unit. All questions carry equal marks.

1. (a) Why is it necessary to limit the band of a signal before performing sampling ? $2 \times 8 = 16$
- (b) Distinguish between attenuation distortion and delay distortion.
- (c) Out of the three digital-to-analog modulation techniques, which one requires higher bandwidth ?
- (d) Why does impulse noise have more effect on digital signals rather than on analog signals ?
- (e) What is Nyquist Theorem ? Outline its significance.

- (f) What problem is encountered in deciding whether a host has become unreachable ?
- (g) Describe the token bucket mechanism for congestion control.
- (h) What do you understand by protocol hierarchies ?

UNIT - I

- 2. (a) What do you understand by computer network topology ? What are its various types ? Discuss suitability of each. 8
- (b) What is OSI reference model ? Illustrate the model by detailing out all its important features. 8

- 3. (a) What is TCP/IP Reference Model ? Illustrate its working through diagram. 8

- (b) What is an IP packet ? What is the minimum overhead in sending an IP packet using PPP ? Count only the overhead introduced by PPP itself, not the IP header overhead. 8

UNIT - II

- 4. (a) What problem with data transmission in broadband coaxial cable networks is addressed using frequency splitting ? Name *two* types of frequency splitting strategy and identify how they are different ? 6

- (b) What is multiplexing ? List different types of multiplexing techniques possible for signals and outline the working of each. 6
- (c) Differentiate between analog and digital signals. 4

5. Explain the following :

- (a) Error-correcting codes 6
- (b) Data encoding 6
- (c) Pulse code modulation 4

UNIT - III

- 6. (a) Explain using an example how bit stung is used to preserve frame boundaries when transmitting binary data at the Data Link level of the protocol stack. 6
- (b) What is HDLC ? Explain HDLC with flow-control and error-control. 6
- (c) What are sliding window protocols ? What are the advantages and disadvantages of credits versus sliding window protocols ? Explain. 4

7. Explain the following :

- (a) Token Ring 6
- (b) CSMA/CD protocol 4
- (c) VLAN 4