

T – 6992**B. C. A. (Fifth Semester)****EXAMINATION, Nov./Dec., 2017**

Paper – 502

NETWORKING CONCEPTS*Time : Three Hours**Maximum Marks : 80 (For Regular Students)**Minimum Pass Marks : 32***Note–** Attempt any *five* questions. Selecting *one* question from each unit.**Unit – I**

1. (a) Define data communication system. Giving neat block diagram, explain the working and purpose of data communication system.
- (b) Define spectrum and bandwidth. Derive the relation between data-rate and bandwidth. jiwajionline.com
2. (a) Giving examples, explain time-domain and frequency-domain concept.

P.T.O.

Discuss how a time-domain expression can be converted into a frequency domain expression. Give an example.

- (b) With reference to Data communication system, write explanatory short notes on any *two* of the following–
 - (i) Communication sources
 - (ii) Transmitter
 - (iii) Receiver
 - (iv) Transmission system.

Unit – II

3. (a) Giving suitable examples and/or diagram, define following terms–
 - (i) Data
 - (ii) Signal
 - (iii) Analog signal
 - (iv) Digital signal.
- (b) Write explanatory detailed notes on :
 - (i) Noise jiwajionline.com
 - (ii) Delay distortion.
4. (a) Define Modulation. Why modulation is necessary in data communication system ? List various modulation techniques. Explain any two of them in brief. Give their applications.
- (b) Giving suitable examples and/or diagram, write short notes on any *two*–

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- (i) CODEC
- (ii) Transmission impairments
- (iii) MODEM.

Unit - III

5. (a) Explain in brief, how to build network with OSI and TCP/IP reference model.
- (b) List various transmission media available. Compare guided and unguided transmission media. List their applications.
6. Giving suitable examples and/or diagram, write explanatory short notes on any *four* of the following— jiwajionline.com
- (i) OSI reference model
 - (ii) TCP/IP reference model
 - (iii) Magnetic media
 - (iv) Fibre optics
 - (v) Radio transmission
 - (vi) Microwave transmission.

Unit - IV

7. (a) Compare bridge, Router, Hub and switch with respect to their functionality. Mention their uses.
- (b) With suitable example and/or diagram, write short notes on any *two*—
- (i) HDLC
 - (ii) Stop-and-wait protocol
 - (iii) ISDN and ATM.

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8. Giving suitable examples and/or diagram, write explanatory short notes on any *four* of the following—
- (i) Sliding window protocol
 - (ii) Stop and wait protocol
 - (iii) Error detection and correcting codes
 - (iv) Static and dynamic channels
 - (v) Framing in data link layer
 - (vi) Error control in data link layer.

Unit - V

9. With suitable examples and/or diagram, explain in detail about the access method and frame format used in ethernet and token ring.
10. Giving suitable examples and/or diagram, write explanatory short notes on any *four* of the following— jiwajionline.com
- (i) . ALOHA
 - (ii) Congestion control algorithm
 - (iii) IEEE standards 1002.3
 - (iv) IP addressing
 - (v) Subnets and their uses
 - (vi) CSMA/CD
 - (vii) Routing Algorithm.

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