No. of Printed Pages—4

773 (DCCN)

[20-HRGPNW–D3S(N)21A]

BCA 3rd Semester (New) Exam., 2020 (W)

DATA COMMUNICATION AND COMPUTER NETWORKS

GCA S3–04

Full Marks : 80

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. *(a)* Answer the following questions : 1×8=8

(i) Define bandwidth.

(ii) Define wavelength.

(iii) What is synchronous communication?

(iv) Define guided media for communication.

(v) Define FTP.

(vi) Define baud rate.

(vii) Define circuit switching.

(viii) Define firewall.

(b) Choose the appropriate option : 1×4=4

(i) A hub is used in

(1) mesh topology

(2) bus topology

(3) ring topology

(4) star topology

(ii) In full-duplex data transmission

(1) data can be transmitted in one direction only

(2) data can be transmitted in both directions

(3) data can be transmitted in both directions simultaneously

(4) None of the above

(iii) A repeater differs from an amplifier because

(1) it cannot distinguish between signal and noise

(2) it regenerates a signal bit by bit

(3) it amplifies signals as well as noise also

(4) it discards signals from its input

(iv) Byte stuffing is related to

(1) error detection

(2) error correction

(3) framing

(4) flow control

(c) Fill in the blanks : 1×4=4

(i) Wireless media means _____ media.

(ii) In TCP/IP model of network architecture, there are _____ layers.

(iii) In fiberoptic communication, signals are transmitted in the form at _____ signals.

(iv) _____ defines the physical or logical arrangement of links in a network.

2. Answer any *five* of the following questions : 2×5=10

(a) Differentiate between switch and gateway.

(b) Define modulation and demodulation.

(c) Differentiate between broadband and baseband.

(d) Define Pulse Code Modulation.

(e) What is Time Division Multiplexing?

(f) Define Domain Name System.

3. Answer any *six* of the following questions : 4×6=24

(a) What is hamming distance? What is the hamming distance for each of the following codes?

(i) d(10000, 00000)

(ii) d(10101, 10000)

(iii) d(11111, 11111)

(b) Explain star topology with an appropriate diagram.

(c) Explain packet switching mechanism.

(d) Describe briefly the various features of serial and parallel transmission.

(e) What are the responsibilities of the network layer in the TCP/IP model?

(f) How are signals transmitted through a fiberoptic cable? Explain.

(g) Write the characteristics of infrared used for wireless transmission. Mention the bandwidth of microwave.

4. Answer any *five* of the following questions : 6×5=30

(a) Explain any one error detection technique.

(b) Differentiate between UDP and TCP.

(c) Explain the function of session layer in ISO-OSI model.

(d) Why is encryption required? Explain different encryption techniques.

(e) Explain simple mail transfer protocol (SMTP).

(f) What is IP address? Discuss the IPv4 addressing.

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