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89 (DCCN)

[19HKMDCAO–M4S(O)19A]

MCA 4th Semester (Old) Exam., 2019 (S)

DATA COMMUNICATION AND COMPUTER NETWORKS

[MCA (S4) 15]

Full Marks : 80

Time : 3 hours

The figures in the margin indicate full marks for the questions

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

(a) Define bandwidth and throughput in terms of computer network.

(b) What is framing?

(c) How is IPv4 addressing different from IPv6 addressing?

(d) What is the key function of transport layer?

(e) Why is DHCP server used?

(f) What is Ethernet?

2. Answer any *three* from the following questions : 4×3=12

(a) Why is routing required? What is the role of gateway in computer network?

(b) Why is twisting done is twisted pair cable? Give two applications of twisted pair cable.

(c) Distinguish between simplex, half-duplex and full-duplex modes of communication with appropriate examples.

(d) Differentiate between client-server and peer-to-peer architecture.

3. Answer any *three* from the following questions : 6×3=18

(a) What is the difference between frequency-division multiplexing and time-division multiplexing?

(b) What are virtual LANs? Give their three characteristics. 3+3=6

(c) Explain how radio communication differs from satellite communication.

(d) *(i)* Write the functions of data link layer.

(ii) What is virtual circuit?

4. Answer any *four* from the following questions : 10×4=40

(a) Compare and contrast circuit switching, message switching and packet switching.

(b) Briefly describe the three-way handshake mechanism of TCP. What are the main characteristics of TCP protocol?

(c) Why is IP address required? Describe the five address classes of IPv4.

(d) Explain CSMA/CD and its precursors.

(e) Write short notes on any *two* of the following :

(i) DNS

(ii) Select repeat ARQ

(iii) Optical fibre cable

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