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63/1 (SEM-6) CC14/BCAHC6146

2024

COMPUTER APPLICATION

Paper : BCAHC6146

(Computer Network and Internet)

Full Marks : 60

Pass Marks : 24

Time : Three hours

The figures in the margin indicate full marks for the questions.

1. Choose the correct options : **(any five)**
1×5=5

(a) What is the primary function of the physical layer in networking?

(i) Data encryption

(ii) Signal transmission

(iii) Routing packets

(iv) Error detection

(b) Which of the following is an example of a wired physical layer medium ?

- (i) Wi-Fi
- (ii) Bluetooth
- (iii) Fiber Optic Cable
- (iv) Infrared

(c) In a wireless network what technology is used to carry signals over the air ?

- (i) Optical fibers
- (ii) Ethernet cables
- (iii) Radio waves
- (iv) Coaxial cables

(d) What is digital transmission ?

- (i) Transmission of analog signals
- (ii) Transmission of digital signals
- (iii) Transmission of both analog and digital signals
- (iv) Transmission of encrypted signals

(e) Which of the following is an advantage of digital transmission over analog transmission ?

- (i) Higher bandwidth utilization
- (ii) Lower Cost
- (iii) Less susceptible to noise
- (iv) Longer transmission distance

(f) What is the primary function of the data link layer ?

- (i) Routing packets
- (ii) Error detection and correction
- (iii) Framing and addressing
- (iv) Signal modulation

(g) What is the role of error detection in the data link layer ?

- (i) To prevent unauthorized access
- (ii) To detect and correct errors in transmitted data
- (iii) To compress data
- (iv) To route data packets

(h) What is Ethernet?

- (i) A physical layer protocol
- (ii) A data link layer protocol
- (iii) A network layer protocol
- (iv) A transport layer protocol

(i) Which IEEE standard defines Ethernet?

- (i) IEEE 802.11
- (ii) IEEE 802.3
- (iii) IEEE 802.1X
- (iv) IEEE 802.15

(j) How many bits are used for an IPv6 address?

- (i) 32 bits
- (ii) 64 bits
- (iii) 128 bits
- (iv) 256 bits

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

- (a) Compare and contrast the responsibilities of the presentation layer and the application layer in the OSI model.
- (b) What is computer networking?
- (c) What is IP address?
- (d) Define the data link layer in networking and explain its primary functions.
- (e) Explain fiber optic cable with example.
- (f) What does congestion mean in layered architecture?
- (g) Explain UDP.

3. Answer the following questions : **(any five)**
5×5=25

- (a) Explain the working principle of wireless LAN.
- (b) Explain the role of the presentation layer in the OSI model and provide an example of its functionality.
- (c) Discuss about CSDM and CSMA/CD in detail.

- (d) Explain how Network Security can be achieved.
- (e) Explain the working of DNS.
- (f) Write a short note on domain name system.
- (g) Write a short note on twisted pair cable and coaxial cable.
- (h) What is Framing? Explain bit stuffing and byte stuffing methods of framing.
- (i) Write difference between connectionless and connection-oriented services.

4. Answer the following questions : **(any two)**

$$10 \times 2 = 20$$

- (a) Explain the functions of various layers of TCP/IP model.
- (b) What is IP address? Explain briefly IPv4 and IPv6.
- (c) Discuss guided and unguided media with suitable examples and diagram.

- (d) Discuss the client server model in the context of the application layer. Explain the roles of clients and servers and how they interact using application layer protocols.