2023

COMPUTER APPLICATION

Paper : BCAHG3036

(Computer Networks and Internet)

Full Marks : 60

Pass Marks : 24

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. Choose the correct answer from the following (any *five*) : 1×5=5

   (a) Which data transmission mode allows data to be transmitted in both directions simultaneously?

      (i) Simplex

      (ii) Half-duplex

      (iii) Full-duplex

      (iv) Multiplex

　　　　　　　　　　　　(*Turn Over*)

(b) What type of network provides secure and controlled access to an organization's internal resources for its employees?

(i) Internet

(ii) Extranet

(iii) Intranet

(iv) LAN

(c) Which network model follows a decentralized approach, allowing each node to share resources and communicate directly with other nodes?

(i) Client/server network

(ii) Peer-to-peer network

(iii) Hybrid network

(iv) Centralized network

(d) Which unguided media is commonly used for point-to-point communication and requires line-of-sight between antennas?

(i) Microwave

(ii) Radio frequency propagation

(iii) Satellite

(iv) Coaxial cable

(e) In which network topology does each device have exactly two neighbours, forming a closed loop?

(i) Star

(ii) Bus

(iii) Ring

(iv) Mesh

(f) Which networking device operates at the physical layer of the OSI model and regenerates signals to extend the reach of a network?

(i) NIC (Network Interface Card)

(ii) Repeater

(iii) Bridge

(iv) Switch

(g) In the context of the Internet, what term refers to the set of interconnected webpages typically organized under a common domain or topic?

(i) Webpages

(ii) Homepages

(iii) Website

(iv) URL

(h) Which type of online platform enables users to create and share content, interact with others, and build a virtual network of connections?

   (i) Blog

  (ii) Search engine

 (iii) Video conferencing

 (iv) E-mail

(i) What does HTML stand for in web development?

   (i) Hypertext model language

  (ii) Hyperlink and text markup language

 (iii) Hyper transfer markup language

 (iv) Hypertext markup language

(j) What is a function in JavaScript?

   (i) A block of code that can be called and executed

  (ii) A type of data that represents a collection of key-value pairs

 (iii) An object that encapsulates data and behaviour

 (iv) A built-in method for modifying a block of code

2. Answer any *five* of the following questions :
$2\times5=10$

 (a) Briefly define the terms 'intranet' and 'extranet'.

 (b) Describe the role of the application layer in the OSI model.

 (c) What is twisted pair? Where is RJ45 used?

 (d) What is a bridge in computer network?

 (e) What is ISP? Give any common ISP.

 (f) Define search engine with example.

 (g) What is a variable? Give example.

3. Answer any *five* of the following questions :
$5\times5=25$

 (a) Describe the various data transmission modes used in computer network. Give proper examples.

 (b) Differentiate between a client/server network and a peer-to-peer network. Discuss the advantages and disadvantages of each network architecture.

 (c) Discuss the significance of layers in both OSI and TCP/IP models.

(d) Discuss the advantages and limitations of microwave.

(e) Define a Network Interface Card (NIC) and explain its role in a computer network.

(f) What is a homepage? Explain the importance of homepage.

(g) What is a web server? Explain the features of web server.

(h) What is a social network? Explain the advantages and disadvantages of social network.

(i) What do you mean by function, methods and events in JavaScript?

4. Answer any *two* of the following questions :

10×2=20

(a) Define and differentiate between LAN, MAN and WAN. Provide the examples of situations where each type of network would be most suitable.

(b) Compare and contrast between guided and unguided media in the context of data communication. Explain the advantages and disadvantages of coaxial cable and optical fiber.

(c) What is network topology? Explain different types of topologies and its advantages with diagram.

(d) What is DTP? Discuss key features introduced by HTML5 and its advantages over previous HTML versions.

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