IV/BCA/403

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(CBCS)

(4th Semester)

BACHELOR OF COMPUTER APPLICATIONS

(Computer Networking)

Paper No. : BCA 403

Full Marks : 75

Time : 3 hours

(PART : A—OBJECTIVE)

(*Marks* : 25)

The figures in the margin indicate full marks for the questions

SECTION—A

(*Marks* : 15)

1. Tick (✓) the correct answer in the brackets provided :   1×10=10

   (a) This network lets users send and receive data as if their devices were connected to the private network.

   (i) Enterprise Private Network   (   )

   (ii) System Area Network   (   )

   (iii) Virtual Private Network   (   )

   (iv) Storage Area Network   (   )

   (b) It measures the relative strengths of two signals or one signal at two different points.

   (i) Attenuation   (   )

   (ii) Distortion   (   )

   (iii) Noise   (   )

   (iv) All of the above   (   )

   (c) A static route which is set up and pre-established prior to initializing connections to the host, is

   (i) Packet Switching   (   )

   (ii) Circuit Switching   (   )

   (iii) Multiplexing   (   )

   (iv) Datagram Network   (   )

(d) The process that converts signals, such as a sound picked up by a microphone into a digital signal is
  (i) digital–to–analog converter ( )
  (ii) wave division multiplexing ( )
  (iii) frequency division multiplexing ( )
  (iv) analog–to–digital converter ( )

(e) This sender sends a number of frames specified by a window size even without the need to wait for individual ACK from the receiver.
  (i) Stop–And–Wait ARQ ( )
  (ii) Go–Back–N ARQ ( )
  (iii) Selective Repeat ARQ ( )
  (iv) All of the above ( )

(f) Media Access Control (MAC) sub-layer is found in
  (i) session layer ( )
  (ii) datalink layer ( )
  (iii) application layer ( )
  (iv) network layer ( )

(g) An unreliable and connectionless protocol that requires little overhead and offers fast delivery is
  (i) TCP ( )
  (ii) PPP ( )
  (iii) UDP ( )
  (iv) POP ( )

(h) This protocol does not advertise routes. It advertises links.
  (i) Distance Vector Routing ( )
  (ii) RIP ( )
  (iii) ERP ( )
  (iv) Link State Routing ( )

(i) IEEE standard for Bluetooth and Wi-Fi coexistence mechanism is
  (i) IEEE 802·15·2 ( )
  (ii) IEEE 802·7 ( )
  (iii) IEEE 802 ( )
  (iv) IEEE 830 ( )

(j) Bluetooth frequencies lie within what is referred to as the radio frequency region, specifically in the range of

    (i) 3·12–5 GHz   (   )

    (ii) 2·40–2·48 GHz   (   )

    (iii) 7·5–8 GHz   (   )

    (iv) 2·50–3 GHz   (   )

2. Tick (✓) whether the following statements are True (T) or False (F) :   1×5=5

(a) A repeater operates at the physical layer.

                                             (*T* / *F*)

(b) A multiplexer is a device that takes a single input line and routes it to one of several digital output lines.

                                             (*T* / *F*)

(c) A bit added to a string of binary code to ensure that the total number of 1-bit in the string is even or odd is called check bit.

                                           (*T* / *F*)

(d) ICMP (Internet Control Message Protocol) is an error-reporting protocol network device.

                                           (*T* / *F*)

(e) A standard network protocol used for the transfer of computer files between a client and server on a computer network is called TELNET.

                                           (*T* / *F*)

SECTION—B

(*Marks* : 10)

Answer the following questions :   2×5=10

1. State the difference between Analog and Digital Signals.

2. What is Multiplexing?

3. What do you understand by checksum?

4. What do you mean by 'Flooding' in network routing algorithm?

5. Explain different protocols involved in e-mail.

(PART : B—DESCRIPTIVE)

(*Marks* : 50)

The figures in the margin indicate full marks for the questions

1. *(a)* Explain the different models of OSI layer.   6

    (b) Explain the different network connecting devices.   4

OR

(c) Describe the different layers involved in TCP/IP protocol suit.   6

(d) What is Network Address? What are the different types of Network Addresses?   4

2. *(a)* Explain the differences among ASK, FSK and PSK shift keys.   6

   (b) What is time division multiplexing?   4

OR

(c) Explain circuit switching. State the advantages and disadvantages.   5

(d) Explain datagram network.   5

3. *(a)* Explain the selective repeat ARQ protocol in detail.   5

   (b) Explain how Humming distance is used in error detecting and correcting codes.   5

OR

(c) Using CRC error checking, perform the operation where the divisor is 1011 and the dividend is 1001. Check whether there is any error in the code or not.   5

(d) Explain Stop–And–Wait ARQ. Under which condition Go–Back–N is inferior to Stop–And–Wait protocol?   5

4. *(a)* What is IP address? Explain the different classes of IP address.   5

   (b) Explain the workings of Link State Routing with suitable diagram.   5

OR

(c) Distinguish between IPv4 and IPv6.   4

(d) Explain the connection establishment and termination process in TCP.   6

5. *(a)* Explain the different features of TCP/IP application layer.   4

   (b) Explain the following :   2×3=6
     (i) DNS
     (ii) FTP
     (iii) WLAN

OR

(c) What is Ethernet? Compare and write the differences between 100 Base–T and Gigabit Ethernet.   5

(d) Write down the architecture layer of Bluetooth.   5

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