

## Professional Course Examination, May 2019

( 4th Semester )

## BACHELOR OF COMPUTER APPLICATIONS

Paper : BCA-403

( Computer Networking )

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 )

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

1. Which topology requires a central controller or hub?

(a) Mesh topology ( ) (b) Star topology ( )

(c) Bus topology ( ) (d) Ring topology ( )

2. PCM is an example of \_\_\_\_ conversion.

(a) digital-to-digital ( ) (b) digital-to-analog ( )

(c) analog-to-analog ( ) (d) analog-to-digital ( )

3. If two or more bits in the data unit have changed from 1 to 0 or 0 to 1, it is called

(a) single-bit error ( ) (b) burst error ( )

(c) burst distance ( ) (d) multiple error ( )

4. Distance vector routing protocols use the \_\_\_\_ algorithm.

(a) Bellman-Ford ( ) (b) link state ( )

(c) Dijkstra's ( ) (d) shortest path ( )

5. A full domain name is a sequence of labels separated by
 

(a) semicolons	( )	(b) dots	( )
(c) colons	( )	(d) hyphens	( )
6. \_\_\_\_ is a type of transmission impairment in which the signal loses strength due to the resistance of the transmission medium.
 

(a) Attenuation	( )	(b) Distortion	( )
(c) Noise	( )	(d) Decibel	( )
7. Circuit switching takes place at the \_\_\_\_ layer.
 

(a) data link	( )	(b) physical	( )
(c) network	( )	(d) transport	( )
8. Hamming code was introduced in the year
 

(a) 1950	( )	(b) 1951	( )
(c) 1952	( )	(d) 1953	( )
9. UDP and TCP are both \_\_\_\_ layer protocols.
 

(a) data link	( )	(b) network	( )
(c) transport	( )	(d) physical	( )
10. In FTP, the well-known port \_\_\_\_ is used for the control connection and the well-known port \_\_\_\_ for the data connection.
 

(a) 21; 22	( )	(b) 21; 20	( )
(c) 20; 21	( )	(d) 20; 22	( )

State whether the following statements are *True (T)* or *False (F)* by putting a Tick (✓) mark in the brackets provided : 1×5=5

1. A router regenerates a signal, connects segments of a LAN and has no filtering capability.
 

( T / F )
2. Microwaves are used for cellular phone, satellite and wireless LAN communications.
 

( T / F )
3. Stop and wait flow control is the simplest form of flow control.
 

( T / F )

4. The Internet protocol version 6 (IPv6) uses 64-bit network address. ( T / F )
5. In a persistent connection, one TCP connection is made for each request/response. ( T / F )

SECTION—B  
( Marks : 10 )

Answer the following questions :

2×5=10

1. Differentiate between physical address and logical address in computer networking.
2. Define multiplexing with suitable diagram.
3. Write a short note on Cyclic Redundancy Check (CRC).
4. Write any four functions of the transport layer.
5. Define Real-time Transport Protocol (RTP).

( PART : B—DESCRIPTIVE )

( Marks : 50 )

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

Answer only **one** pair (a) and (b) or (c) and (d) from each question

1. (a) Explain briefly the different layers of OSI model. 7  
(b) Define network. How is it related to Internet? 3

**OR**

- (c) What is TCP/IP protocol suite? Explain briefly the different layers in TCP/IP protocol suite. 6  
(d) Write one use each of bridge, repeater, router and gateway. 4



2. (a) Explain the three methods (ASK, FSK, PSK) of digital-to-analog digital conversion methods. 9
- (b) What is the main difference between digital and analog signals? 1

OR

- (c) What is fiber-optic cable? Explain how it works by giving a suitable diagram. 5
- (d) Write the advantages and disadvantages of fiber-optic cables. 5
3. (a) Define PPP. Explain PPP frame format with suitable diagram. 6
- (b) Explain the Go-Back-N ARQ. 4

OR

- (c) Define Hamming code. Explain 7-bit Hamming code distance for error detection and correction by giving suitable example. 7
- (d) What is simple parity check code? Differentiate between even parity and odd parity. 3
4. (a) Explain IP version 4 header with suitable diagram. 6
- (b) Explain SYN flooding attack. 4

OR

- (c) What is NAT? Explain the network address translation process using NAT table. 6
- (d) Explain link state routing. 4
5. (a) What is DNS? Explain full resolver and stub resolver with suitable diagrams. 6
- (b) Explain the different components of e-mail. 4

OR

- (c) Explain the architecture of IEEE 802.11 with suitable diagram. 7
- (d) Define bluetooth. Describe briefly the two types of bluetooth network. 3

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