Register Number:……..

KUMARAGURU
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B.E DEGREE EXAMINATIONS: MAY 2018

(Regulation 2015)

Sixth Semester

COMPUTER SCIENCE & ENGINEERING

U15CST501: Computer Networks

COURSE OUTCOMES

CO1: Outline the data communication system and the purpose of layered architecture.

CO2: Explain the data link layer protocols.

CO3: Outline the network layer protocols

CO4: Apply the network layer concepts to solve a problem

CO5: Illustrate the functions of transport layer protocols.

CO6: Summarize application layer protocols.

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Match List 1 with List 2 and select the correct answer below the list. CO1 [K_2]

List 1	List 2
i. Reliable process to process message delivery	a) Data Link Layer
ii. Route selection	b) Application Layer
iii. Defines frames	c) Physical Layer
iv. Provides user services such as email and file transfer	d) Network Layer
v. Transmission of a bit stream across a physical medium	e) Transport Layer

a) i - a, ii - e, ii - c, iv -d , v-b

b) i - e, ii - d, iii -a, iv – b, v-c

c) i - a, ii - b, iii - c, iv – d, v-e

d) i - a, ii - e, iii - b, iv – d, v – c

2. The protocol data unit(PDU) for a Application layer in the Internet stack is CO1 [K_2]

A)Segment
(B)Datagram
(C)Message
(D)Frame

a) A,B b) D Only

c) C Only d) A,B,C

3. IEEE project 802 divides the data link layer into an upper -------- sub layer and a lower ------- sub layer. CO2 [K_1]

a) LLC,MAC b) MAC,LLC

c) PDU,HDLC d) HDLC,PDU

4. Frame delimiting at the data link level is achieved by CO2 [K1]

i. Bit Stuffing
ii. CRC
iii. Equalization
iv. Hamming Code

a) i only b) ii only

c) i,ii,iii only d) i and ii only

5. Assertion: Wireless LANs use Carrier Sense Multiple access with Collision Avoidance CSMA/CA rather than using CSMA/CD (Collision Detection) CO3 [K_1]

Reason: It is difficult and costlier to detect collisions in wireless medium as compared to wired medium

a) both A and R are individually true and R is the correct explanation of A b) both A and R are individually true but R is not the correct explanation of A

c) A is true but R is false d) A is false but R is true

6. In the IPv4 addressing format, the number of networks allowed under Class C addresses is CO3 [K_2]

a) 2^14 b) 2^21

c) 2^7 d) 2^24

7. Match List 1 with List 2 CO4 [K_1]

List 1	List 2
A. 198.54.67.34	1. Private Class A
B. 10.4.5.7	2. Class D
C. 224.124.45.56	3. Loop Back
D. 127.0.0.1	4. Public Class C

a) A-4, B-2, C-3, D-1 b) A-3, B-1,C-4,D-2

c) A-4, B-1, C-2,D-3 d) A-3,B-4,C-1,D-2

8. The receiver of the data controls the amount of data that are to be sent by the sender is referred as — CO5 [K1]

a) Flow control
b) Error detection
c) Error Control
d) Congestion Control

9. Assertion (A): FTP uses TCP for transmission of files between user and FTP Server. — CO5 [K_1]
Reason (R): TCP uses Three-way handshake for reliable connection and send data error free.

a) Both A and R are Individually true and R is the correct explanation of A
b) Both A and R are Individually true but R is not the correct explanation of A
c) A is true but R is false
d) A is false but R is true

10. Match List 1 with List 2 — CO6 [K1]

List 1	List 2
A. HTTP	1. 53
B. FTP	2. 80
C. DNS	3. 23
D. TELNET	4. 21

a) A-4, B-2, C-3, D-1
b) A-2, B-4,C-1,D-3
c) A-4, B-1, C-2,D-3
d) A-3,B-4,C-1,D-2

PART B (10 x 2 = 20 Marks)

(Answer not more than 40 words)

11. What are the types of guided media? — CO1 [K_1]
12. What are the three fundamental characteristics that determine the effectiveness of the data communication system? — CO1 [K_2]
13. List out the functions of data link layer. — CO2 [K_2]
14. List the most command kinds of Base band 802.3 LAN. — CO2 [K_2]
15. Differentiate between Switched virtual circuit and Permanent virtual circuit. — CO3 [K_2]
16. Define subnetting. — CO4 [K_1]
17. Differentiate TCP and UDP protocol. — CO5 [K_2]
18. List the four networks related QoS attributes. — CO5 [K_2]
19. What is the purpose of Domain Name System? — CO6 [K_2]
20. Give the format of HTTP Request message What is the default port number of HTTP protocol? — CO6 [K_2]

Answer any FIVE Questions
PART C (5 x 14 = 70 Marks)
(Answer not more than 300 words)

Q.No. 21 is Compulsory

21.	Explain the functions and protocols of each layer in OSI Reference model with neat diagram.		CO1	[K_2]
22.	i. Illustrate the checksum error detection mechanism with an example.	(7)	CO2	[K_2]
	ii. A series of 8 bit message blocks is to be transmitted across a data link using a CRC for error detection. A generator polynomial of 11001 is to be used. Message is given as 11100110. Explain the FCS generation and FCS checking process using the above given data.	(7)	CO2	[K_3]
23.	i. Explain the basic difference between IEEE 802.3 and switched Ethernet, as far as implementation is concerned.	(7)	CO2	[K2]
	ii. Suppose you have to develop an error recovery protocol for a link that is unreliable and delay sensitive, which of the following protocol would you choose? Justify your answer a) Stop & wait. b) Selective Repeat. c) Go back.	(7)	C03	[K3]
24.	i. What is IPV6? Explain its advantages over IPV4.Also explain its frame format.	(7)	CO3	[K2]
	ii. Describe the working of distance vector routing in detail.	(7)	CO4	[K2]
25.	i. Discuss TCP Connection establishment using three-way handshaking with a neat diagram.	(7)	CO5	[K2]
	ii. Validate the list of policies that can prevent congestion in Open Loop Congestion Control.	(7)	CO5	[K2]
26.	Describe in detail about TCP and UDP header format with neat sketch.		CO5	[K2]
27.	Explain the Architecture of WWW. Also summarize the functions of a network management system.		CO6	[K2]

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