KUMARAGURU
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B.E/B.TECH DEGREE EXAMINATIONS: APRIL / MAY 2024

(Regulation 2018)

Fourth Semester

ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

U18AII4201: Computer Networks

COURSE OUTCOMES

CO1:   Understand the functionality and protocols operating in each layer of OSI reference model

CO2:   Design error control, flow control and routing protocols

CO3:   Construct network traffic characteristics and congestion control mechanism

CO4:   Apply error control, flow control and routing protocols

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

Answer all the Questions:
PART A (10 x 2 = 20 Marks)
(Answer not more than 40 words)

1.	What do you mean by a protocol and why it is essential?	CO1	[K_1]
2.	List out the advantages of using unguided medium for transmission	CO1	[K_1]
3.	Show that IPV5 address is not deployed in networks	CO2	[K_2]
4.	Compare and contrast switches and routers	CO2	[K_2]
5.	Outline segment numbering system in TCP	CO3	[K_2]
6.	Identify the case in which rebroadcast will happen in piggybacking	CO3	[K_3]
7.	Compare and contrast TLS and SSL	CO4	[K_2]
8.	Which is the IP protocol which is based on communication protocol that is used to deliver data from server to client	CO4	[K_1]
9.	List few tools for network simulation	CO1	[K_1]
10.	Interpret the Total Cycle Time where Transmission Delay (Tt) and Propagation Delay (Tp) are similar	CO4	[K_2]

Answer any FIVE Questions:-
PART B (5 x 16 = 80 Marks)
(Answer not more than 400 words)

11.	a)	Explain OSI model in detail	8	CO1	[K$_2$]
	b)	Compare and contrast any four networking devices along with their pros and cons	8	CO1	[K$_2$]
12.		Identify the relationship between Time Division Multiplexing and Frequency Division Multiplexing with respect to circuit switching. Also, support your answer with the advantages of using packet switching over circuit switching	16	CO2	[K$_4$]
13.		Examine the structure of UDP with a neat sketch and detail how the 32 bits of its header are split across source port, destination port, length and checksum. Do you feel that in an unreliable communication like UDP error detection mechanism like checksum is essential?	16	CO3	[K$_4$]

14. a) Compare and contrast the following.   8   CO4 [K$_3$]

SMTP

MIME

IMAP

    b) Explain the key components in IP security and relate it with Internet Key Exchange   8   CO2 [K$_2$]

15. Examine the ways of performing error detection for the following data.   16 CO1 [K$_4$]
   i) Checksum for the original data 1001101 11100010 00100100 10000100 for whom k=4 and m=8
   ii) CRC for the original data 1010000 by generating CRC generator accordingly

16. a) Summarize any two frameworks that implement routing techniques along with their importance   8 CO2 [K$_2$]

    b) Compare and contrast leaky bucket and token bucket frameworks   8 CO3 [K$_3$]

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