KUMARAGURU
college of technology
character is life

B.E/B.TECH DEGREE EXAMINATIONS: NOV/DEC 2023

(Regulation 2018)

Third Semester

COMMON TO ALL

U18CSR3221: CCNA - Introduction to Networks

COURSE OUTCOMES

CO1: Understand architecture, reference models, protocols, networking elements and various transmission media.

CO2: Understand the addressing schemes and LAN protocol.

CO3: Ability to build simple networks and implement addressing scheme.

CO4: Understand the fundamental network security concepts.

CO5: Ability to configure basic features in a router and switch.

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 are the basic elements that are required for any communication to happen?	CO1	[K_1]
2. Which are the two layers perform error and flow control?	CO1	[K_2]
3. Express the relationship between encoding, signaling and media.	CO2	[K_2]
4. List the various frame forwarding methods implemented in a switch.	CO2	[K_2]
5. Differentiate between static and dynamic routing.	CO3	[K_2]
6. What is the network ID of the given host IP 12.34.56.78 /13?	CO3	[K_3]
7. List the various range of port numbers and their purpose.	CO4	[K_2]
8. List the fields of a UDP header.	CO4	[K_2]
9. Differentiate between peer-to-peer and client-server communication.	CO3	[K_2]
10. What is a malware? Give examples.	CO5	[K_1]

Answer any FIVE Questions:-
PART B (5 x 4 = 20 Marks)
(Answer not more than 80 words)

11. Discuss about the various transmission media used to build computer networks.	CO1	[K_2]
12. Compare OSI and TCP/IP network models.	CO1	[K_2]
13. Explain in detail about ICMPv4.	CO3	[K_2]

14.	Differentiate between static and dynamic routing.		CO3	[K2]

15.	You are a network administrator at KCT ITES department. Your institution has purchased a new router. Configure it with a hostname. As per the security policy, secure the console connection of it.		CO5	[K3]

16.	Explain web and email protocols.		CO5	[K2]

Answer any FIVE Questions:-
PART C (5 x 12 = 60 Marks)
(Answer not more than 300 words)

17. a) Discuss about the four basic characteristics of network architecture that should possess to meet the user requirement. — 6 — CO1 [K2]

b) Illustrate the datalink frame and explain the functionalities of the various fields of it. — 6 — CO1 [K2]

18. a) Discuss in detail about the various transmission media available for the implementation of computer networks. — 6 — CO2 [K2]

b) Explain in detail about the MAC address and its types. — 6 — CO2 [K2]

19. a) Illustrate and explain the purpose of the various fields of an IPv4 header. — 6 — CO3 [K2]

b) Explain in detail about ICMPv4. — 6 — CO2 [K2]

20. a) An organization is granted with the network id 16.7.3.0/24. The administrator wants to create 5 fixed-length subnets. consider 0th subnet also to be utilized.

    a. Find the custom subnet mask.
    b. Find the number of usable host address in each subnet.
    c. Find the total number of subnets
    d. Find the first and last usable address of the 2nd subnet.
    e. Find the broadcast id of the 3rd subnet
    f. What is the network id of the 0th subnet? — 12 — CO3 [K2]

21. a) Explain the TCP 3 – way handshake process with the help of a sequence diagram. — 6 — CO3 [K3]

b) What is the well-known port number used by SMTP, POP, IMAP, DNS? — 6 — CO3 [K2]

22. a) Explain about the methods used to provide security to end devices and network devices — 6 — CO5 [K2]

b) List and explain the functions of the fields in the TCP header. — 6 — CO4 [K2]

****