UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
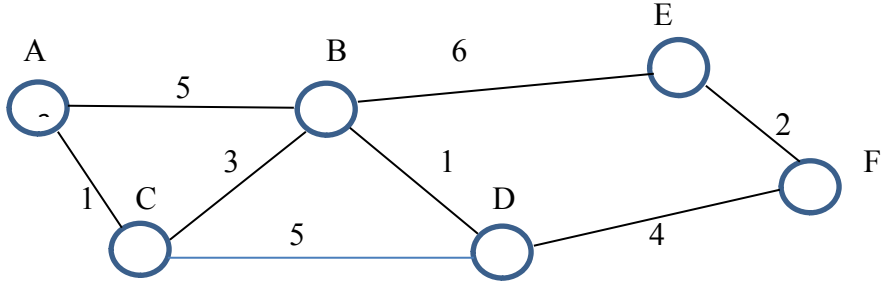## End Semester Examination, May 2019

Programme Name: M. Tech (CSE)   **Semester** : II
Course Name : Data Communication and computer network   **Time** : 03 hrs.
Course Code : CSEG 7004   **Max. Marks : 100**
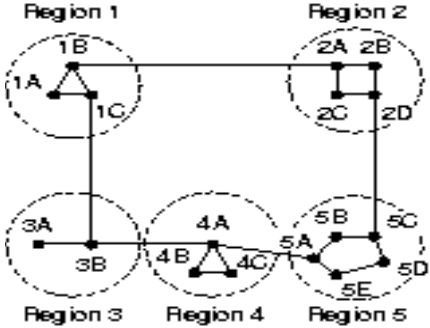**Nos. of page(s)** : 2
Instructions: All questions are compulsory.

SECTION A

S. No.	Attempt Every Question	Marks	CO
Q 1	The power of a signal is 10 mW and the power of the noise is 1 µW; what are the values of SNR and SNR_{dB} ?	4	CO2
Q 2	Differentiate between Simplex, half Duplex and Full Duplex with appropriate example.	4	CO1
Q 3	Discuss the ATM with detail description of its structure and its application.	4	CO2
Q 4	Discuss the concept of the Frame Relay and the Fast Ethernet with their application,	4	CO2
Q 5	Differentiate between IPV4 and IPV6 version.	4	CO4
	SECTION B		
Q 6	Discuss the Layered Architecture and the concept of the OSI Model with architecture and the appropriate example.	10	CO2
Q 7	Discuss the significance of ICMP with brief and name the different types of error reporting messages and the query messages.	10	CO4
Q 8	Define the static routing and show the computation at node A using the Dijkstra's Algorithm: OR Define Hierarchical Routing and the significance of Hierarchal routing with detail	10	CO4

	and create the routing table for the router 1A and the hierarchal routing table for the bellow network:		
Q 9	Differentiate between simplex, half duplex and full duplex with detail example and also discuss there application domain with its signification.	10	CO1
	SECTION-C		
Q 10	Derive the relation between the offered traffic and the throughput in Pure Aloha and slotted Aloha? Aloha protocol is used to share 56 kbps satellite channel. if each packet is 1000 bits long find maximum throughput in pockets/sec [for pure and slotted aloha both	20	CO3
Q 11	Discuss the Application of the Multiplexing and Demultiplexing and also analyze the need of UDP with appropriate example. OR Short notes on the following: a) HTTP b) FTP c) DNS	20	CO5

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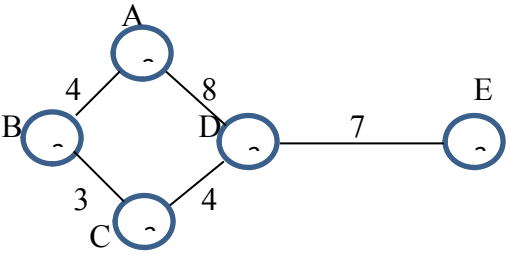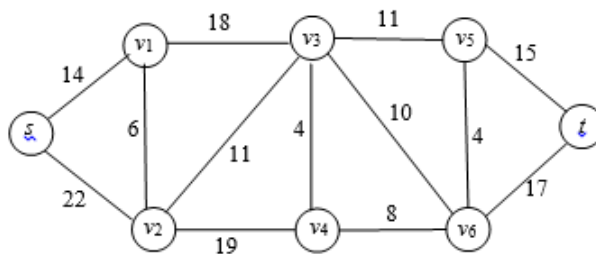Course Code   : CSEG 7004   Max. Marks : 100
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SECTION A

S. No.		Marks	CO
Q 1	Analyze Network and Protocol, justify these terms by giving appropriate example in the field of Data Communication.	4	CO1
Q 2	Define the concept of line discipline and the three-tier architecture with detail and their application.	4	CO2
Q3	Discuss the application of TDM, FDM and discuss their concept with respect to their application.	4	CO3
Q4	If a periodic signal is decomposed into five sine waves with frequencies of 100, 300, 500, 700, and 900 Hz, what is its bandwidth? Draw the spectrum, assuming all components have a maximum amplitude of 10 V.	4	CO1
Q5	A signal travels through an amplifier, and its power is increased 10 times. This means that $P_2 = 10P_1$. In this case, the amplification (gain of power) can be calculated as.	4	CO2

SECTION B

Q 6	Differentiate OSI model with TCP IP Model by taking the appropriate example.	10	CO2
Q 7	Differentiate between RIP and OSPF with example.	10	CO4
Q 8	Brief on the CRC and parity with appropriate example.	10	CO2
Q 9	Define dynamic routing and discuss the distance vector routing algorithm and compute the DVR table at the node A, B and C only.	10	CO4

OR

Discuss the Dijkstra's Algorithm and compute the node s in the below figure:

SECTION-C

Q 10	What do you understand pure aloha and the slotted aloha and compare with them proper example with derivation of the offered traffic and the throughput? A group of N user share 56 kbps pure aloha channel. Each station outputs 1000 bits frame on an average of once 100 seconds. even if the previous has not yet been sent(buffered) what is the maximum value of N.	20	CO3
Q 11	Short notes on the following: a) HTTP b) FTP c) DNS Or Construct the Structure of the Transfer control protocol header format with its various services and discuss the transmission policy in brief.	20	CO5