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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

FIFTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2017

Course Code: IT307

Course Name: COMPUTER NETWORKS (IT)

Max. Marks: 100 Duration: 3 Hours

PART A

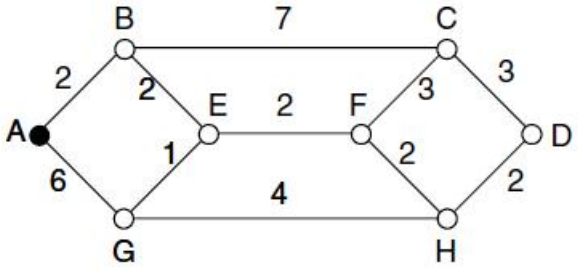
Answer any two full questions, each carries 15 marks.

			Marks
1	a)	Classify computer network based on Scale, topology and transmission technology.	(6)
	b)	For 20 devices in a network, what is the number of cable links required for a mesh and ring topology. How many ports are needed for each device?	(3)
	c)	List the different types of services provided under connection-oriented and connection-less services with lucid example.	(3)
	d)	State three main differences between ISO-OSI model and TCP/IP Model.	(3)
2	a)	The code word 11110101101 is received using hamming encoding algorithm. What was the original code sent?	(5)
	b)	Calculate the Shannon channel capacity in following cases: Bandwidth = 3MHz and $SNR_{db} = 40$.	(3)
	c)	With the help of pseudo code explain the concept One-Bit Sliding window protocol. What happens when station both station send its dataat different time and at the same time?	(7)
3	a)	What are the characteristics of GEO, MEO & LEO communication satellites?	(3)
	b)	Differentiate Switches and Routers.	(2)
	c)	What is CRC? If the generating polynomial for CRC code is $x^3 + x + 1$ the message word is 11010011101100.Determine the check bits and the encoded word. How does the receiver know that an error has occurred? What is the result of the receivers CRC calculations?	(10)

PART B

Answer any two full questions, each carries 15 marks.

4	a)	Explain Binary Exponential Back off algorithm.	(3)
	b)	Draw the Binary, Manchester and Differential Manchester encoding for the bit stream 1010100011.	(3)
	c)	What is congestion? State congestion prevention polices of data link layer, network layer?	(4)
	d)	Why we need subnetting? Given network number 200.10.20.0. Using Class C subnetting and find all subnets such that each sub-network will have minimum 10 hosts.	(5)
5	a)	Find the shortest path between A to D in the undirected graph given below using the Dijkstra shortest path routing algorithm. Solve the problem stepwise.	(8)



b) What is count-to-infinity problem in Distance Vector Routing? (3)

c) Explain the frame format of 802.3 MAC frame. Mention the restrictions imposed on minimum lengths of an 802.3 frame. (4)

6 a) How leaky bucket and token bucket algorithm supports traffic shaping? (3)

b) Define and explain random access, controlled access & channelization methods of multiple access protocols? (12)

PART C

Answer any two full questions, each carries 20 marks.

7 a) What is Berkley Sockets? (4)

b) What is the difference between POP3and IMAP mail server? (6)

c) Explain TCP connection setup via three way handshaking. Explain piggybacking and transmission time role in the process. (10)

8 a) Define Remote Procedure Call. How does it work? (4)

b) Differentiate between UDP & TCP (6)

c) What is DNS? Explain DNS Domain Namespace, hierarchy & types. Also explain the DNS common Resource Records (10)

9 a) Write short notes on Web cache and Cookies. Do we need to clear our browser cache and get rid of cookies? Why? (4)

b) What is two-army problem? Explain connection release protocol in Transport Layer diagrammatically. (10)

c) Explain different types of P2P file sharing architectures. (6)

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