Seat No:_____

GANPAT UNIVERSITY

B.Tech Semester VIII Mechatronics Engineering
Examination May-June 2012

MC 804 Mechatronics System Integration & Networking

Max. Time: 3 Hrs.] **[Max. Marks: 70**

Instructions:

1. Attempt all questions.
2. Answers to the two sections must be written in separate answer books.
3. Figures to the right indicate full marks.
4. Assume suitable data, if necessary.

SECTION-I

Que-1 **(A)** What is the significance of topology in data communication industry? Explain various types of topologies with suitable example and diagram. **6**

(B) Distinguish Physical addressing and logical addressing. **6**

OR

(A) What do you understand by the term network? Explain all types of area network with example. **6**

(B) Explain System network architecture by using layered model? **6**

Que-2 **(A)** Explain the significance and applicability of OSI model and also draw the seven layer diagram. **5**

(B) Define and explain the layer which is responsible for Path determination or routing operation in OSI Model. **6**

OR

(A) What are the different classes of IP addressing? Define with the help of example. **5**

(B) Explain IEEE 802 standards for protocol handling. **6**

Que-3 **(A)** Explain the working of Network and presentation layer with suitable example. **3**

(B) Explain sub netting and super netting with suitable network architecture. **3**

(C) Explain Ethernet specification in brief. **3**

(D) Explain the concept of token ring with the help of diagram. **3**

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SECTION-II

Que-4	**(A)**	Explain hidden station problem and exposed station problem in brief.	**5**
	(B)	State the roll of Network interface card. How can you speed up the movement of data through NIC? Explain in brief.	**5**
	(C)	How much time in Bluetooth one slot frame is used for hopping mechanism? What about three slot frame and five slot frame?	**2**
		OR	
	(A)	Draw frame format of a frame in baseband layer of Bluetooth. Describe each field in detail.	**5**
	(B)	Give the classification of connecting devices based on the layer which they operate. Compare the function of hub, repeater, router and multiplexer.	**5**
	(C)	What is the purpose of NAV in wireless LAN? Explain.	**2**
Que-5	**(A)**	What is the significance of Huffman code? Compress the message ABRACADABRA using Huffman code. 3 bit per symbol are used before compression.	**6**
	(B)	Write down steps for troubleshooting network problems.	**5**
		OR	
	(A)	Explain RSA algorithm with suitable example.	**6**
	(B)	Explain message authentication in detail	**5**
Que-6	**(A)**	Explain following network trouble shooting tools. 1. Cable testers 2. Sniffer's portable and sniffers	**4**
	(B)	Explain hash function criteria in detail.	**4**
	(C)	Distinguish symmetric key cryptography and asymmetric key cryptography.	**2**
	(D)	What are the challenges in hardware software integration?	**2**

==========END OF PAPER==========