USN | | | | | | | | | | **10EC/TE841**

Eighth Semester B.E. Degree Examination, Dec.2016/Jan.2017
Multimedia Communications

Time: 3 hrs.   Max. Marks:100

Note: *Answer any FIVE full questions, selecting*
atleast TWO questions from each part.

PART – A

1 a. With neat diagrams, explain communication networks used to provide multi-media communication services. **(10 Marks)**
   b. Determine the propagation delay associated with the following communication channels : i) a connection through a private telephone network of 1 km, ii) a connection through a PSTN of 200 km, iii) a connection over a satellite channel of 50,000 km. Assume that the velocity of propagation of a signal in the case of i) and ii) is 2×10^8 ms^{-1} and in the case of iii) 3×10^8 ms^{-1}. **(10 Marks)**

2 a. List and explain types of text used to produce pages of documents. **(06 Marks)**
   b. With schematic diagram discuss audio/sound synthesizer. **(08 Marks)**
   c. Derive the time to transmit the following digitized images at both 64 kbps and 1.5 Mbps : i) a $640 \times 480 \times 8$ VGA – compatible image, ii) a $1024 \times 768 \times 24$ SVGA – compatible image. **(06 Marks)**

3 a. Briefly discuss JPEG encoder and decoder. **(14 Marks)**
   b. A series of messages is to be transferred between two computers over a PSTN. The messages comprise just the characters A through H, Analysis has shown that the relative frequency of occurrence of each character is as follows : A and B = 0.25, C and D = 0.14, E, F, G and H = 0.055. Derive code word set using Huffman coding. **(06 Marks)**

4 a. Discuss ADPCM sub-band encoder and decoder. **(12 Marks)**
   b. With neat schematic, discuss MPEG-4 decoder. **(08 Marks)**

PART – B

5 a. With neat frame format, explain IEEE802.3 network characteristics. **(08 Marks)**
   b. Explain LAN protocol framework. **(06 Marks)**
   c. Assuming a signal propagation delay in the fiber of 5 μs per 1 km, derive the latency of the following FDDI ring configurations in both time and bits assuming a usable bit rate of 100 Mbps i) 2 km ring with 20 stations ii) 20 km ring with 200 stations iii) 100 km ring with 500 stations. **(06 Marks)**

6 a. Discuss internet networking components and protocols. **(10 Marks)**
   b. Explain IPV6 header fields and format. **(06 Marks)**
   c. Determine the amount of padding required in a MAC frame when transmitting an ARP/RARP message over i) an Ethernet LAN and ii) an IEEE 802.3 LAN. **(04 Marks)**

7 a. With neat schematic diagram, explain ATM protocol architecture. **(12 Marks)**
   b. Discuss ATM cell formats. **(08 Marks)**

8 a. Explain TCP/IP protocol suite and inter layer address selectors. **(12 Marks)**
   b. Discuss real-time transport control protocol usage. **(08 Marks)**

* * * * *