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Roll No.

EIGHTH SEMESTER

B.E. (EC)

MID SEM EXAMINATION

March 2006

EC-411 CONSUMER ELECTRONICS

Time: 1 Hour 30 Minutes

Max. Marks : 20

Note : Answer **ALL** questions.
Assume suitable missing data, if any.

- 1[a] Calculate the interval between 62.5 Hz to 2000 Hz and the number of octaves. 1
- [b] The gain of a audio amplifier is 30 dbm, calculate its out put is watts. 1
- [c] A microphone placed at a distance of 10 meters from a sound source radiating 1 watt gives maximum output. If the mic is rotated 90° the power of the source has to be increased by 20 watts to get the same output. Calculate the directivity of the mic in the optimum direction. 1
- [d] If the intensity of sound from a loud speaker is 0.02 w/m^2 at a distance of 2 meters when the amplifier delivers 20 watts to the L/s, calculate the efficiency of the L/S. 1
- [e] What will be the drop is intensity of sound in db if the distance from the sound source is increased from R to 4R. 1
- [f] If the round pressure level of $20 \times 10^{-6} \text{ Pa}$ is 0 db, calculate the SPL in db for a pressure level of 0.2 Pa. 1
- [g] Mention the essential requirements of a Hi-Fi system. 1
- 2[a] Explain the working principle and construction of a moving coil microphone and give its characteristics. 2
- [b] Describe noise canceling microphone 2

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- 3 Explain :-
- [a] Masking of sound 2
 - [b] Bass, mid range and treble frequencies 2
 - [c] Reverberation 1
- 4[a] Explain multi way loud speaker system. 2
- [b] Explain the necessity of cross over networks in multiway L/S system. 2

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MID SEM EXAMINATION

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EC-412 COMPUTER COMMUNICATIONS & ELECTRONICS SWITCHING

Time: 1 Hour 30 Minutes

Max. Marks : 20

Note : Answer **ALL** questions.
Assume suitable missing data, if any.

- 1[a] Which OSI layer is responsible for the following :
- i. Determining the best path to route packets.
 - ii. Providing end-to-end communications with reliable service.
 - iii. Providing node-to-node communications with reliable service. 1½
- [b] What difference does it make to the network layer if the underlying data link layer provides a connection oriented service versus the connectionless service? 2
- [c] Give two features that the data link layer and transport layer have in common and give two features in which they differ. 2½
- 2[a] What advantage does a circuit switched network have over a packet switched network? What advantage does TDM have over FDM in circuit switched network? 3
- [b] Suppose we wish to transmit at a rate of 64 kbps over a 3 KHz Telephone channel. What is the minimum SNR required to accomplish this? 2
- [c] Consider a baseband transmission channel with a Bandwidth of 10 MHz. Which bit rates can be supported by the bipolar line code and by the Manchester line code? 2

- 3[a] Consider the Go-Back-N ARQ protocol.
- i. What can go wrong if the ACK timer is not used?
 - ii. Show how the frame timers can be maintained as an ordered list where the time-out instant of each frame is stated relative to the time-out value of the previous frame. 2
- [b] Find the optimum frame length n_f that maximizes transmission efficiency for a 1 Mbps channel with 10 ms reaction time, 25 bytes overhead, 25 bytes ACK frame and bit error, probability $p=10^{-6}$ for the following protocols
- i. Stop and wait ARQ
 - ii. Go-back-N ARQ. 5