End Semester Examination 2014-2015

B. Tech. 5th Semester

Electrical Engineering

Communication System and Networking (EC-1506)

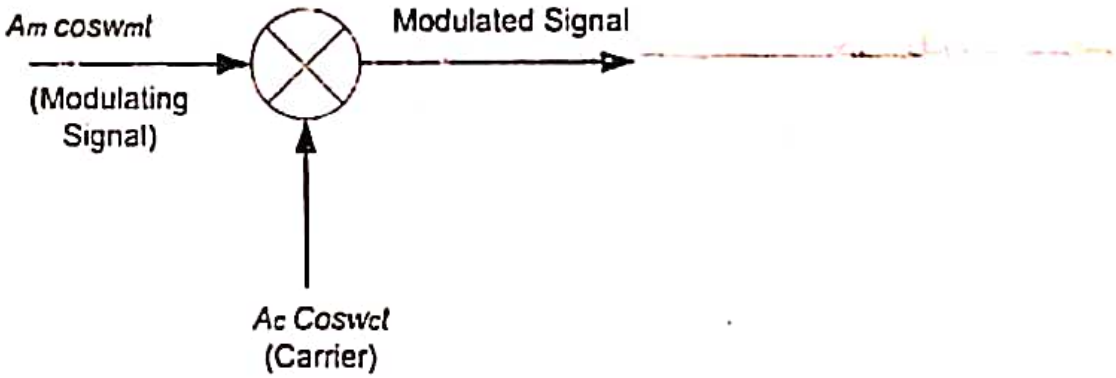
Time: 3.00 Hours **Max Marks: 60**

NOTE: There are six questions and all are compulsory, marks are given with each question. Assume the suitable symbolic representation of instructions, control variables and registers if required.

Q.1 (a) Explain the Delta modulation and demodulation technique. Draw the block diagram and explain the each step required in modulation and demodulation. [5]

(b) Explain any Modulation and Demodulation method of DSBSC (Double Sideband suppressed Carrier. [5]

Q.2 (a) Give the different components available in the Modulated signals and give the mathematical representation of modulated signal. Draw the spectral of modulated signal. Use the figure given below. [5]



(b) An angle-modulated signal with the carrier frequency Wc = $2\pi \times 10^5$ is described by the question $S_{FM}(t) = 10\cos(w_c t + 5\sin 3000t + 10\sin 2000\pi t)$ [5]

(i) Find the power of modulated signal.
(ii) Find the frequency deviation Δf
(iii) Find the deviation ratio β
(iv) Find the phase deviation
(v) Estimate the bandwidth of $S(t)$

Q.3 (a) Explain the generation of FM by indirect method. Draw and explain the function of each. [5]

(b) Eight Signals (samples) are transmitted in one second by 8 QAM. What will be the baud rate and bit rate of transmission. Explain the QAM (Quadrature Amplitude Modulation) with example. [5]

Q.4 (a) Compare the OSI reference model and TCP/IP model in term of number of layers and services provided. [5]

(b) Explain the 802.11 layered architecture. How contention free and contention services are provided. [5]

Q.5 (a) Draw the timing diagram of basic access method in 802.11 wireless LAN and draw and explain the frame format of MAC frame. [5]

(b) What is sub-netting? One organization has the network address 132.132.0.0. Network should be divided in to 9 subnets. Give the starting and last IP address assigned to each subnet. What will be the subnet mask? [5]

Q.6 (a) What is cont to infinity problem in the distance vector routing protocol. How this problem can be resolve by the link-state routing problem. [5]

(b) What are the common Standard Ethernet implementations? Explain the thick Ethernet. Why frame size in Ethernet should be at least 64byte? [5]