College of Engineering, Pune
End Semester Exam – Nov. 2011
S.Y. B.Tech. (Institute Elective)
Principles of Electronics Communication

Maximum Marks: 50 Duration – 3 hrs.

Instructions:
1. Assume suitable data wherever necessary.
2. All questions are compulsory.
3. Show *all* your working and reasoning. (a correct answer without any backup reasoning or supporting calculations will earn *zero* credit)
4. All answers should be in brief.

			Marks
Q. 1	A	An AM signal has the equation: $V(t) = (15 + 4 \sin 44 \times 10^3 t) \sin 46.5 \times 10^6 t$ volts (i) Find the carrier frequency. (ii) Find the frequency of the modulating signal (iii) Find the value of m. (iv) Find the peak voltage of the unmodulated carrier. (v) Sketch the signal.	5
	B.	Why is it necessary to use a high-frequency carrier with a radio communication system?	5
Q. 2	A.	Illustrate Signal to noise ratio for a system, noise figure and noise temperature.	5
	B.	Compare the effects of modulation on the carrier power and the total signal power in FM and AM.	5
Q. 3	A.	Compare the digital modulation schemes you studied, listing the advantages and disadvantages.	5
	B	A GSM cellular radio system uses GMSK in a 200-kHz channel, with a channel data rate of 270.833 kb/s. Calculate (i)the frequency shift between mark and space. (ii) the transmitted frequencies if the carrier frequency is 880 MHz.	5

Q. 4 A Find the velocity and the orbital period of a satellite in a circular orbit, 36,000 km above the earth's surface. Compare LEO, MEO and GEO satellites. 7

B What is DTMF .dialing and why it is better than pulse dialing? 3

Q. 5 A. Explain Signaling system seven (SS 7) in brief. Write a short note on cellular telephony. 6

B. Explain RS-232 serial interface along with important pins functions . 4