EI - 503

B.E. V Semester

Examination, June 2015

Communications Engineering

Time : Three Hours

Maximum Marks : 70

Note: i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.

ii) All parts of each questions are to be attempted at one place.

iii) All questions carry equal marks, out of which part A and B (Max.50 words) carry 2 marks, part C (Max.100 words) carry 3 marks, part D (Max.400 words) carry 7 marks.

iv) Except numericals, Derivation, Design and Drawing etc.

Unit-I

1. a) Find the Fourier Transform of $\delta(t)$ an impulse of unit strength.
   b) What do you understand by energy and power signal?
   c) Discuss the auto-correlation of a periodic waveform.
   d) Explain about deterministic and random signals with examples.

OR

Find the Fourier Transform of $\sin \omega_0 t$. Compare with the transform of $\cos \omega_0 t$.

Unit-II

2. a) What is Amplitude Modulation? Draw required waveform.
   b) What do you understand by angle modulation? Explain.
   c) What is DSB-SC transmission.
   d) Discuss the phase shift method of generating single side band system.

OR

What is the effect of frequency and phase errors in synchronous detection? Consider DSB-SC and SSB-SC.

Unit-III

3. a) What is straight radio receiver? Mention its drawback.
   b) Explain principle of superheterodyne radio receiver with schematic block diagram.
   c) Discuss the circuit diagram of detectors. Why detector is necessary in radio receiver?
   d) Draw the circuit diagram of FM radio receiver and explain its working.

OR

Discuss following circuits in detail :

i) AGC ii) AFC

Unit-IV

4. a) What is Sampling theorem?
   b) What is Aliasing?
   c) Discuss concept of FSK. What is the purpose of FSK.
   d) What is Time Division Multiplexing? Explain it with suitable diagram.

OR

Discuss following with circuits.

i) PSK ii) QPSK

Unit-V

5. a) What is geosynchronous orbit?
   b) What are the satellite frequencies, bands used for communications?
   c) Draw and discuss earth station of satellite.
   d) Draw the block diagram of satellite system.

OR

Discuss FDMA and TDMA in detail.