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Total No. of Pages : 02

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# B.Tech.(Electronics Engg.) (2012 Onwards) /(ECE)/(ETE) (2011 Onwards) (Sem.-4) ANALOG COMMUNICATION SYSTEMS Subject Code : BTEC-401 Paper ID : [A1189]

Time : 3 Hrs.

Max. Marks : 60

## **INSTRUCTION TO CANDIDATES :**

- 1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
- 2. SECTION-B contains FIVE questions carrying FIVE marks each and students has to attempt any FOUR questions.
- 3. SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.

### **SECTION-A**

#### Q1. Answer briefly :

- a. In a Broadcast system, the maximum audio frequency transmitted from a radio station is of the order of 5 KHz. Calculate the size of the antenna, if signal is transmitted without modulation.
- b. What are the frequency components of an AM wave? Plot the frequency spectrum of single tone AM system.
- c. Why there is need of modulation in communication system?
- d. Write the differences between baseband transmission and bandpass transmission.
- e. Write the role of limiter in FM.
- f. What is vestigial side band transmission?
- g. Define the terms selectivity and sensitivity of a receiver.
- h. Derive the power relation of AM system.
- i. Draw pre-emphasis circuit and discuss why we pre-emphasis the signal before transmission in FM.
- j. What is pulse time modulation?



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# **SECTION-B**

- Q2. How can you reject image frequency in super heterodyne receiver? Why double spotting is harmful? Also draw selectivity curve at 750 KHz.
- Q3. Draw circuit diagram and waveforms of Square law modulator.
- Q4. With the help of block diagram, explain Armstrong method of FM generation.
- Q5. Give comparison of SSB transmission and conventional AM system .
- Q6. What do you mean by synchronization in PAM system?

### **SECTION-C**

- Q7. In tabular form, give comparison of PAM, PWM and PPM systems.
- Q8. Explain the following :
  - a. Two way FM radio transmitter and receiver.

b. AM receiver using phase locked loop.

Q9. With derivation, explain DSB-SC system. Draw power spectrum and explain why we prefer SSB instead of DSB-SC system.