

**USELT07 - Electronics Paper-I : Communication Electronics**

P. Pages : 2

**GUG/W/23/12006**

Time : Three Hours



Max. Marks : 50

- Notes :
1. All questions are compulsory and carry equal marks.
  2. Draw neat and labeled diagram wherever necessary.
  3. Use of a calculator/ log table is allowed.

**Either:**

1. a) Draw the block diagram of electronic communication system and explain the function of each block. State the examples of electronic communication systems. **8+2**

**OR**

- b) Explain the electromagnetic communication spectrum with a suitable diagram. Explain the role of TRAI in communication system. **6+4**

**Either:**

2. a) Explain the need of modulation in communication. **3+3+**  
Explain amplitude modulation with a suitable diagram. Derive the expression for its modulation index. **4**

**OR**

- b) Explain frequency modulation (FM) with waveforms. State advantages of frequency modulation. **7+3**  
Differentiate between FM & PM.

**Either:**

3. a) Explain the generation of FM using VCO with a suitable diagram. **6+4**  
Explain the concept of superheterodyne receiver.

**OR**

- b) State and prove the sampling theorem. **7+3**  
Explain the role of multiplexing techniques in a communication system.

**Either:**

4. a) Draw the block diagram of pulse code modulation and explain the function of each block. **7+3**  
Explain amplitude shift keying with waveform.

**OR**

- b) Explain the need of satellite communication. State its advantages. **6+4**  
Explain the basic concept of the mobile communication system.

5. Attempt **any ten** of the following.

**10x1**

- a) What is noise in the electronic communication system.
- b) Define signal to noise ratio.
- c) What is baseband signal?
- d) Define modulation.
- e) Define modulation index in FM?
- f) State disadvantages of AM modulation.
- g) What is channel capacity?
- h) Define PWM.
- i) Draw the waveform of PAM.
- j) State the advantages of digital communication.
- k) What is geosynchronous satellite?
- l) What is TDMA?

\*\*\*\*\*