

GRADED QUESTIONS
COMMUNICATIONS SYSTEMS

LEVEL – A

1. Give two applications of geostationary satellite?
2. Why is it necessary to use satellite for the long distance T V transmission?
3. Name the process by which exact reproduction of document at distant places can be received?
4. Name the process of superimposing signal frequency on the carrier wave.
5. Which wavelengths are reflected by the ionosphere?
6. What is the necessary of modulation?
7. Define modulation?
8. Name the type of the radio wave of frequency 300 MHz to 3000 MHz?
9. Draw the diagram of AM modulated wave?
10. Write the block diagram of communication system?
11. What are called ground waves?
12. What is meant by demodulation?
13. What is meant by noise?

LEVELB

1. Name the device which is fitted in the satellite to receive signals from the earth stations?,
2. Why are the transmission signals using ground waves restricted up to a frequency of 1500 kHz?
3. What is the main reason for attenuation in optical fiber?
4. Which method of wave propagation had been used in the radio wave transmission from one place to another?
Write the block diagram of detector for AM signal?
5. What is meant by amplification?
6. What is meant by base band signal? Describe briefly with the help of a block diagram the arrangement for the transmission and reception of the message signal.
7. Explain briefly with the help of diagrams, the terms: (i) amplitude modulation, (ii) frequency modulation. Which of these (a) gives better quality transmission, (b) has a larger coverage?
8. What is meant by the term 'modulation'? Explain with the help of a block diagram, how the process of modulation is carried out in radio broadcasts.
9. What is an 'analog signal' and a 'digital signal'?
10. What should be the length of the dipole antenna for a carrier wave of Frequency 3×10^8 Hz?
11. Explain the types of communication systems according to the mode of the transmission.
12. Explain the following terms:
 - (i) Ground waves
 - (ii) Space waves
 - (iii) Sky waves
 - (iv) What do you mean by baseband signal
13. What is the wavelength of TV station which transmits on 500MHz?

LEVEL-C

1. What is the range of frequency allotted for commercial FM radio broadcast?
2. Name the type of the radio wave of frequency 300 MHz to 3000 MHz?
3. What should be the length of the dipole antenna for a carrier wave of Frequency 3×10^8 Hz?
4. Give reasons for the following:
 - a. Long distance radio broadcasts use short-wave bands.
 - b. The small ozone layer on top of the stratosphere is crucial for human survival.
 - c. Satellites are used for long distance TV transmission. Consider an optical communication system operating at nm. Suppose, only 1% of the optical source frequency is the available channel band-width for optical communication. How many channels can be accommodated for transmitting
 - i. audio-signals requiring a band-width of 8 kHz,
 - ii. Video TV signals requiring an approximate band-width of 4.5 MHz? Support your answer with suitable calculations.
5. The height of a T.V. tower at a place is 400 m. Calculate
 - a. the maximum range up to which signals can be received from this tower and
 - b. Area covered by the transmission. (Radius of the Earth 6400 km) .
6. Why moon cannot be as communication satellite? Give any two reasons.
7. Why sky waves are not used in the transmission of T V signal?

8. A schematic arrangement for transmitting a message signal (20 Hz to 20 kHz) is given below: Give two drawbacks from which this arrangement suffers.

