

(3 hours)

Total Marks: 80

- N.B.: (1) **Question No. 1** is compulsory.
 (2) Solve any **THREE** questions from remaining **FIVE** questions.
 (3) Draw **neat diagrams** and assume suitable **data** wherever **necessary**. Justify your assumptions.

1.
 - (a) Write a short note on QAM. (5)
 - (b) Define: i) Radiation Intensity ii) Directive Gain iii) Directivity iv) Power Gain (5)
 - (c) Explain NBFM and WBFM in detail. (5)
 - (d) Write a short note on IMT-2000. (5)
2.
 - (a) What are the different models used for multipath reception? Explain any one in detail. (10)
 - (b) Explain M-ary digital modulation techniques. (10)
3.
 - (a) Explain generation of AM using Third method. (10)
 - (b) Explain the terms “Amplitude Limiting” and “Thresholding” with their need. (10)
4.
 - (a) Explain ground wave propagation with it's advantages and disadvantages. (10)
 - (b) Explain PM with it's mathematical representation, modulation index and waveform. (10)
Also define the term “Phase Deviation”.
5.
 - (a) Explain the significance of AWGN channel. Write a short note on “Pulse Dispersion”. (10)
 - (b) Explain FM demodulation using Balanced Slope Detector. (10)
6.
 - (a) What are the different types of communication channels explain in detail. (5)
 - (b) Explain AM demodulation using Simple Diode Detector. (10)
 - (c) Explain folded dipole with it's radiation pattern. State how it differs from simple dipole. (5)