

**Duration: 3hrs**

**[Max Marks: 80]**

- N.B. : (1) Question No 1 is Compulsory.  
(2) Attempt any three questions out of the remaining five.  
(3) All questions carry equal marks.  
(4) Assume suitable data, if required and state it clearly.

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|---|----------------------------------------------------------------------------------------------------|------|
| 1 | Attempt any FOUR                                                                                   | [20] |
| a | Explain the disadvantages of TRF receiver and how those are overcome in superheterodyne receiver.  |      |
| b | What are different types of noise.                                                                 |      |
| c | Explain the practical diode detector in brief.                                                     |      |
| d | Compare FM and AM.                                                                                 |      |
| e | What is modulation? Explain different types of Modulation.                                         |      |
| 2 | a Draw and explain the Indirect method of FM generation with suitable block diagram.               | [10] |
|   | b Draw a neat block diagram of superheterodyne radio receiver and explain each block in detail.    | [10] |
| 3 | a What are different methods for SSB generation? Explain any one in detail.                        | [10] |
|   | b Differentiate between PAM, PPM and PWM.                                                          | [10] |
| 4 | a State and prove sampling theorem for low pass band limited signal.                               | [10] |
|   | b With the help of suitable waveforms explain generation and detection of PAM                      | [10] |
| 5 | a Derive the expression for total power in AM.                                                     | [10] |
|   | b With the help of block diagram explain the concept of PCM.                                       | [10] |
| 6 | a Explain FDM with neat block diagram. Also discuss its advantages, disadvantages and applications | [10] |
|   | b With the help of suitable waveforms explain generation and detection of PPM                      | [10] |