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| Question  No | WRT | **1 Mark Questions** | 7 | 5 |  |
| 1 |  | What is the basic function of an FM demodulator? |  | 1 | CO-2 |
|  |  |  |  |  |  |
| 2 |  | Name any one method used for FM demodulation. |  | 1 | CO-2 |
|  |  |  |  |  |  |
| 3 |  | Which component (or block) converts frequency variations into amplitude variations? |  | 1 | CO-2 |
|  |  |  |  |  |  |
| 4 |  | What is the pilot carrier frequency? |  | 1 | CO-2 |
|  |  |  |  |  |  |
| 5 |  | What is the purpose of the 19 kHz pilot tone in FM stereo? |  | 1 | CO-2 |
|  |  |  |  |  |  |
| 6 |  | In FM stereo, the sum signal (L+R) is transmitted in what frequency range? |  | 1 | CO-2 |
|  |  |  |  |  |  |
| 7 |  | Name the three basic components of a PLL. |  | 1 | CO-2 |
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| Question  No | WRT | **2 Mark Questions** | 4 | 2 |  |
| 1 |  | What is demodulation in FM systems? |  | 2 | CO-2 |
|  |  |  |  |  |  |
| 2 |  | Define the free-running range and capture range of a PLL. |  | 2 | CO-2 |
|  |  |  |  |  |  |
| 3 |  | 1. What is the lock range? 2. Define the error signal in the PLL. |  | 2 | CO-2 |
|  |  |  |  |  |  |
| 4 |  | Differentiate between linear and non-linear models of PLL. |  | 2 | CO-2 |
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| Question  No | WRT | **5 Mark Questions** | 4 | 2 |  |
| 1 |  | Explain the operation of the PLL and how it works as an FM demodulator. |  | 5 | CO-2 |
|  |  |  |  |  |  |
| 2 |  | Draw the modulation block diagram of QAM and explain the operation. |  | 5 | CO-2 |
|  |  |  |  |  |  |
| 3 |  | A frequency division multiplexing system is used to Multiplex 24 independent voice signals. AM modulation is used for the transmission. each voice signal is allotted a maximum frequency of 4 kilohertz. What is the overall transmission bandwidth of the channel? |  | 5 | CO-3 |
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| Question  No | WRT | **12 Mark Questions** | 4 | 2 |  |
| 1 |  | Derive the equation for the non-linear model of PLL and draw its block diagram. |  | 12 | CO-2 |
|  |  |  |  |  |  |
| 2 |  | Derive the equation for the linear model of PLL and draw its block diagram. |  | 12 | CO-2 |
|  |  |  |  |  |  |
| 3 |  | Derive the output of the PLL. |  | 12 | CO-2 |
|  |  |  |  |  |  |
| 4 |  | Derive the error signal e(t) of the PLL. |  | 12 | CO-2 |
|  |  |  |  |  |  |
| 5 |  | What is multiplexing, and explain the operation of FM stereo multiplexing with a neat block diagram. |  | 12 | CO-2 |
|  |  |  |  |  |  |