

**3236**  
**BOARD DIPLOMA EXAMINATION, (C-09)**  
**JUNE - 2019**  
**DIPLOMA IN ELECTRONICS & COMMUNICATION ENGINEERING**  
**COMMUNICATION ENGINEERING**  
**THIRD SEMESTER EXAMINATION**

**Time: 3 Hours****Total Marks: 80**

**PART - A (10 x 3 = 30 Marks)**

*Note 1: Answer all questions and each question carries 3 marks*

*2: Answers should be brief and straight to the point and shall not exceed 5 simple sentences*

1. Define signal to noise ratio
2. Define bandwidth of a communication channel
3. State how bandwidth varies with frequency deviation in FM signal
4. List the measures to avoid over modulation
5. Calculate the modulation index of an FM signal with 5MHz carrier modulated by 15 KHz modulating signal with maximum deviation of 75KHz
6. What is the principle of super heterodyning in radio receivers
7. List advantages of FM receivers over AM receivers
8. Define Image frequency rejection ratio in radio receivers
9. List various losses in transmission lines
10. Define critical frequency

**PART - B (5 x 10 = 50 Marks)**

*Note 1: Answer any five questions and each question carries 10 marks*

*2: The answers should be comprehensive and the criteria for valuation is the content but not the length of the answer*

11. a) Distinguish between base band, carrier and modulated signals with waveforms. 5 marks  
 b) Describe the relation between channel bandwidth, base band bandwidth and transmission time. 5 marks
- \* 12. Describe time domain and frequency domain representation of signal with diagrams.
13. a) Derive the time domain equation for AM signal. 6 marks  
 b) Calculate the modulation index if a carrier signal  $20\sin 2000t$  is amplitude modulated by a Signal  $10\sin 400t$ . 4 marks
14. Explain Frequency Division Multiplexing with a neat sketch
15. Draw block diagram of super heterodyne receiver and briefly explain its operation
16. Explain the block diagram of an FM transmitter using reactance method with neat sketch
17. Explain space wave propagation of EM waves
18. Explain the parameters of a transmission line

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- xxx -