

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER-IV • EXAMINATION – WINTER 2013**

**Subject Code: 141102****Date: 30-12-2013****Subject Name: Communication Engineering****Time: 02:30 pm to 05:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Explain SSB generation by any one method. **07**  
 (b) Compare AM and FM in detail. **07**
- Q.2** (a) Explain the FDM System for telephone communication with the help of block diagram. **07**  
 (b) Discuss FM Modulation and Demodulation in detail. **07**
- OR**
- (b) Draw the spectrum of Vestigial sideband for the CCIR System-B showing all details of video and audio signals, carriers. **07**
- Q.3** (a) Explain the demodulation of AM using envelope detector. **07**  
 (b) In a radio receiver RF amplifier and mixer are connected in cascade. The amplifier has a noise figure of 10 dB and power gain of 15 dB. The noise figure of the mixer stage is 20dB. Calculate the overall noise figure referred to the input. **07**
- OR**
- Q.3** (a) Derive the friss formula for overall noise factor of amplifiers in cascade. **07**  
 (b) Compare CCIR-B and PAL TV standard. **07**
- Q.4** (a) Draw block diagram of TV receiver. Mention the functions of each block. **07**  
 (b) Describe the principle and operation of phase discriminator(foster seely discriminator) with neat sketch. **07**
- OR**
- Q.4** (a) Compare PAM,PWM and PPM in detail. **07**  
 (b) Explain FDM telephony in detail. **07**
- Q.5** (a) Draw and explain a circuit diagram of IF section of TV receiver and explain it briefly. **07**  
 (b) Write brief note on optical sources used for optical communication system. **07**
- OR**
- Q.5** (a) Explain Station keeping for satellite. **07**  
 (b) Explain Terrestrial Microwave Links with example. **07**

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