

GUJARAT TECHNOLOGICAL UNIVERSITY**B. E. - SEMESTER – VI • EXAMINATION – WINTER 2012****Subject code: 160802****Date: 03/01/2013****Subject Name: Electronics Communication****Time: 02.30 pm - 05.00 pm****Total Marks: 70****Instructions:**

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

- Q.1** (a) What do you mean by “Communication”? Describe in detail Communication system with the help of block-diagram. **07**
(b) Derive the DSB-FC form of Amplitude-modulated wave in time domain. **07**
- Q.2** (a) Derive the Mathematical form of Frequency modulated wave. **07**
(b) Explain: “ Skin effect ” **07**
- OR
- (b) A 20 MHz carrier is modulated by a 300 Hz audio sine wave, If the carrier voltage is 5 volt and the maximum deviation is 12 kHz, Write the equation of this modulated wave for : (A) F. M. (B) P.M. **07**
- Q.3** (a) Describe in detail: “FRIIS’S FORMULA”. **07**
(b) List the methods used for SSB generation, and explain “Phase Shift method” for generation of L.S.B. with mathematical proof. **07**
- OR
- Q.3** (a) Write a short note on: A.G.C. (Automatic Gain Control) **07**
(b) Write a short note on : (1) Partition Noise (2) Flicker Noise **07**
- Q.4** (a) What do you mean by “super heterodyne receiver”? Why it is called super heterodyne receiver? Explain different blocks of receiver in detail. **07**
(b) A mixer stage has a noise figure of 20 dB, and this is preceded by an amplifier that has a noise figure of 9 dB and an available power gain of 15 dB. Calculate the overall noise figure referred to the input. **07**
- OR
- Q.4** (a) Requirements of the “RF AMPLIFIER” in the super heterodyne receiver? Without “RF AMPLIFIER” receiver will work? **07**
(b) A receiver tunes signals from 550 to 1600 kHz with an IF=455 kHz, Find the frequency tuning ranges and capacitor tuning ranges for the oscillator section and RF section. **07**
- Q.5** (a) Explain Kepler’s first law in detail. Also define term: Apogee, Perigee **07**
(b) Explain Kepler’s Second law in detail. Also define term: Primary body, Secondary body. **07**
- OR
- Q.5** (a) Write a short note on : “Geostationary orbit” **07**
(b) Explain Power System with reference to satellite communications. **07**
