

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VI • EXAMINATION – SUMMER • 2014****Subject Code: 161704****Date: 28-05-2014****Subject Name: Analog and Digital Communication****Time: 10:30 am - 01:00 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 need of modulation in detail **07**  
(b) Discuss the types, causes and effects of the various forms of the noise which may be created within a receiver or an amplifier. **07**
- Q.2** (a) The antenna current of an AM transmitter is 8A if only the carrier is sent, but it increases to 8.93A if the carrier is modulated by a single sinusoidal wave. Determine the percentage modulation. Also find the antenna current if the percent of modulation changes to 0.8. **07**  
(b) Explain mathematical representation of FM. **07**
- OR**
- (b) Compare frequency modulation and amplitude modulation. **07**
- Q.3** (a) Write a note on pulse code modulation. **07**  
(b) Explain phase shift keying and application of it in detail. **07**
- OR**
- Q.3** (a) Introduce following terms **07**  
i. Network Interface card  
ii. Pulse width modulation  
iii. Pre-emphasis  
iv. Cyclic redundancy check  
v. Companding  
vi. Noise  
vii. Metropolitan area network  
(b) Describe frequency division multiplexing groups and group formation in detail. **07**
- Q.4** (a) Briefly describe OSI model architecture **07**  
(b) List methods for error detection and error correction. Explain any one method in detail. **07**
- OR**
- Q.4** (a) Explain wireless LANs using CSMA/CA. **07**  
(b) Explain IEEE 802.6 Metropolitan Area Network. **07**
- Q.5** (a) Explain adaptive delta modulation. **07**  
(b) Describe RS 232C standard and compare it with RS 422 standard. **07**
- OR**
- Q.5** (a) Write a note on optical fiber cable. **07**  
(b) Elucidate high-level data link Control protocol. **07**

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