

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE - SEMESTER-VI (NEW) - EXAMINATION – SUMMER 2018**

**Subject Code:2161704**

**Date:03/05/2018**

**Subject Name:Analog and Digital communication**

**Time:10:30 AM to 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) Draw the various waveform for  $M=1, M>1, M<1$  for sinusoidal modulation. **03**  
(b) Compare Amplitude and frequency modulation with various points. **04**  
(c) Compare analog and digital communication with various points. For amplitude modulation derive equation for Power, current and modulation index. **07**
- Q.2** (a) Explain quantization in brief. **03**  
(b) Explain in brief Shot noise, Johnson noise, noise figure and noise calculations **04**  
(c) List error detection and correction methods. Explain any one in detail **07**
- OR**
- (c) Explain the three network topology in details with diagrams. **07**
- Q.3** (a) Draw and explain in brief PAM, PPM **03**  
(b) What is difference between synchronous and asynchronous transmission **04**  
(c) Computer the CRC 4 character for the following message using a divisor constant of 10011: 1100 0110 1011 01 **07**
- OR**
- Q.3** (a) Draw and explain in brief PWM **03**  
(b) Describe SONET topology and its frame. **04**  
(c) Explain regular and adaptive delta modulator. **07**
- Q.4** (a) Explain nyquist sampling rate in brief. **03**  
(b) Explain Data Link Layer Protocols in brief. **04**  
(c) Explain pulse code modulation. **07**
- OR**
- Q.4** (a) Explain GEO, LEO and MEO satellites **03**  
(b) Compare DTE and DCE Equipment. **04**  
(c) What is the advantage of balanced modulator? Explain with diagram **07**
- Q.5** (a) Enlist various losses in fiber optics. **03**  
(b) Compare RS422 and RS423 Interface Standards **04**  
(c) Explain optical detectors with neat sketch. **07**
- OR**
- Q.5** (a) Explain basic principal of light propagation in fiber optics **03**  
(b) Compare Metropolitan Area Network Vs Local area network **04**  
(c) Define following Terminology: (a) Protocol (b) Baud Rate (c) Half Duplex (d) Full Duplex (e) Transmission Efficiency(f) Topology(g) Network **07**

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