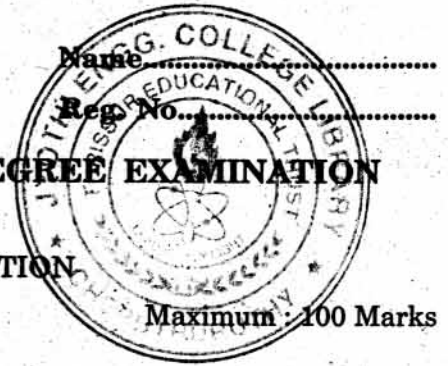


C 28727



**SIXTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION  
JUNE 2012**

**EC 04 604—DIGITAL COMMUNICATION**

Time : Three Hours

Maximum : 100 Marks

*Answer all questions.*

- I. (a) What is the purpose of line coding? Draw the ON-OFF, Bipolar NR2 waveforms for the bit stream 10101100.  
(b) Draw the spectra of PAM, PPM and PWM signals.  
(c) Briefly explain about eye diagram.  
(d) Explain the working of a scrambler. State its applications.  
(e) Write notes on Gaussian random process.  
(f) Explain the principle of maximum likelihood detector.  
(g) Draw the ASK, FSK, PSK, QPSK waveforms of the bit stream 110010110.  
(h) Compare binary and M-ary signalling.
- (8 × 5 = 40 marks)
- II. (a) Explain a PCM system. Derive its output SNR expression.  
*Or*  
(b) Explain the following :—  
(i) Adaptive delta modulation.  
(ii) Manchester signalling.
- III. (a) Explain Nyquist criteria for zero ISI.  
*Or*  
(b) Explain on Gram-Schmidt orthogonalisation.
- IV. (a) Derive the impulse response of a matched filter.  
*Or*  
(b) Explain any two methods of carrier synchronisation.
- V. (a) Derive the bit error probability of Coherent ASK, PSK and FSK receivers.  
*Or*  
(b) Derive the bit error probability of a QPSK receiver.
- (4 × 15 = 60 marks)