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**V 4562**

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2008.

Fifth Semester

Electrical and Electronics Engineering

EC 1311 — COMMUNICATION ENGINEERING

(Common to Electronics and Instrumentation Engineering and Instrumentation and Control Engineering)

(Regulation 2004)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define selectivity and sensitivity of a receiver.
2. Define frequency modulation.
3. Briefly explain the characteristic impedance for a transmission line.
4. Draw the electrical equivalent of an two wire parallel transmission line.
5. State shannon's limit for information capacity.
6. State Nyquist sampling theorem
7. Explain Hamming code.
8. List the objectives of ISDN.
9. What are the advantages of optical fiber communication?
10. Define angle of inclination of satellite orbit.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Compare AM with FM with special reference to spectrum, power requirements, sidebands and bandwidth required. (6)  
(ii) Explain any two methods used for generating SSB/SC. (10)

Or

- (b) With neat block diagram explain the blocks of super heterodyne FM receiver. (16)

12. (a) Describe about quarter-wavelength transformer matching and stub matching. (16)

Or

- (b) (i) Explain in detail about the Ground wave propagation. (10)  
(ii) Write short notes on :  
(1) Critical Frequency (3)  
(2) Maximum usable frequency (3)

13. (a) (i) Explain the operation of sample and hold circuit. (10)  
(ii) Describe the operation of TDM. (6)

Or

- (b) (i) Describe the operation of FSK transmitter and receiver. (12)  
(ii) Determine the peak frequency deviation, minimum bandwidth, and baud rate for a binary FSK signal with a space frequency of 49 KHz a mark frequency of 51 KHz and an input bit rate of 2Kbps. (4)

14. (a) Describe the physical, electrical and functional characteristics of the Rs. 232 serial interface. (16)

Or

- (b) (i) Describe the architecture of ISDN. (10)  
(ii) Briefly describe the access methods used for LAN. (6)

15. (a) Describe the functional characteristics of an uplink, a transponder, and a down link model for a satellite system. (16)

Or

- (b) (i) Define Numerical aperture and derive the expression for it. (4)  
(ii) Explain the principle operation of avalanche photodiode. (12)