Reg. No. : | | | | | | | | | | | |

Question Paper Code : S 4743

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2009.

Fourth Semester

Electrical and Electronics Engineering

EC 256 — COMMUNICATION ENGINEERING

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

(Regulation 2001)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define frequency modulation and its modulation index.

2. What are the primary advantages of SSB suppressed carrier modulation over amplitude modulation?

3. State sampling theorem.

4. Draw the block diagram of Delta modulator.

5. What is probability of error?

6. Define matched filter.

7. What is characteristic impedance?

8. Differentiate FDM from TDM.

9. What are the scanning methods adopted in television system?

10. Comment on picture definition TV systems.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Compare AM and FM. (8)

(ii) A 20 MHz carrier is modulated by a 500 Hz audio sine wave. If the carrier voltage is 4 volts and the maximum deviation is 10 KHz, write the equation of the modulated wave for FM and PM. If the modulating frequency is changed to 1 KHz, keeping all remaining constant, write the new equations for FM and PM. (8)

Or

(b) (i) What are the methods used for the generation of FM? (4)

(ii) With a neat diagram, explain the Armstrong method in detail. (12)

12. (a) Explain the working of an Adaptive Delta Modulator. Support your answer with neat block diagram and wave forms. (16)

Or

(b) Compare the merits, demerits and applications of PAM, PDM, PPM and PCM. (16)

13. (a) Design an optimum filter and derive its transfer function for a base band receiver. (16)

Or

(b) (i) Derive the error probability for PSK-system. (10)

(ii) Compare FSK and PSK schemes. (6)

14. (a) Write short notes on :

(i) Propagation coefficient (4)

(ii) Phase velocity and line wavelength (6)

(iii) Fibre losses. (6)

Or

(b) Write in detail about the effect of dispersion on pulse transmission. (16)

15. (a) With a neat block diagram, explain the Black and White television receiver. (16)

Or

(b) Explain the concept of electron beam deflection by a magnetic field in CRT's with neat diagrams. (16)
