G 749

Reg. No............................

Name............................

B.TECH. DEGREE EXAMINATION, MAY 2014

Seventh Semester

Branch : Electrical and Electronics Engineering

EE 010 705—COMMUNICATION ENGINEERING (EE)

(Improvement/Supplementary)

[2010 Admissions]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer **all** *questions.*
Each question carries 3 marks.

1. Define the terms (a) Amplitude modulation ; and (b) Frequency modulation.

2. What is meant by interlaced scanning ?

3. What is the duty cycle of a radar with a PW of 3 µS and a PRT of 6 ms ?

4. Define the terms (a) posigrade orbit ; and (b) retrograde orbit.

5. Draw the block diagram of a uplink model of a satellite system.

(5 × 3 = 15 marks)

Part B

Answer **all** *questions.*
Each question carries 5 marks.

6. What are the advantages of RF amplifier ?

7. Explain what is meant by I and Q signals to colour TV and why they are generated.

8. Give a block schematic of Radar system and briefly discuss.

9. With block diagram, explain a typical satellite communication system.

10. What is meant by amplitude shift keying ? Determine the band and minimum bandwidth necessary to pass a 10 kbps binary signal using amplitude shift keying.

(5 × 5 = 25 marks)

Part C

Answer **all** *questions.*
Each question carries 12 marks.

11. With block diagram, explain FM transmitter. Explain how frequency stability is obtained.

Or

12. Explain the operation of balanced ratio detector and show how it is derived from basic circuit. Explain the improvement effected by each of the changes.

13. Explain in detail about a colour TV transmitter.

Or

14. Explain about the synchronizing pulse, blanking pulse and equalising pulse.

15. Explain the working of MTI Radar with block schematic.

Or

16. (a) Derive the basic radar range equation, as governed by the minimum receivable echo power, P_{min}.

(8 marks)

(b) Calculate the maximum range of a radar system which operates at 3 cm. with a peak pulse power of 500 kW, if its minimum receivable power is 10^{-13} W, the capture area of its antenna is 5 m^2 and the radar cross-sectional area of target is 20 m^2.

(4 marks)

17. Briefly describe the operation of CDMA multiple accessing system.

Or

18. Explain in detail about the satellite uplink and downlink modelling.

19. Explain in detail about the binary phase shift keying and binary modulation.

Or

20. Explain in detail about Adaptive digital coding and PAM.

[5 × 12 = 60 marks]