F 3179 (Pages : 2) Reg. No.....

Name.....

ST JOSEPH'S COLLEGE OF ENGINEERING LIBRARY KOTTAYAM

B.TECH. DEGREE EXAMINATION, NOVEMBER 2014

Fifth Semester

Branch : Electrical and Electronics Engineering

COMMUNICATION ENGINEERING (E)

(Old Scheme—Prior to 2010 Admissions)

[Supplementary/Mercy Chance]

Time : Three Hours Maximum : 100 Marks

Part A

Answer **all** *questions.*
Each question carries 4 *marks.*

1. Derive the equation of an AM signal.
2. What is the bandwidth needed for FM signal transmission ? Explain.
3. Define : (i) Selectivity ; (ii) Sensitivity.
4. What is the need of converting incoming frequency to IF in superheterodyne receiver ? Explain.
5. Differentiate between positive and negative modulation.
6. Explain the need of colour subcarrier in colour TV transmission.
7. What are multiple time around echoes ? How can we avoid it ?
8. What are the differences between a pulsed radar and a CW radar ?
9. Write the advantages of a Geo-Synchronous satellite.
10. Explain about FDMA used in satellite Communication.

(10 × 4 = 40 marks)

Part B

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

11. Derive the spectrum of a FM signal.

Or

12. (a) Derive the total power transmitted in AM signal. (8 marks)
    (b) Write the advantages of FM. (4 marks)
13. (a) Draw and explain a FET reactance modulator. (7 marks)
    (b) Why local oscillator frequency is taken higher than the incoming frequency in superheterodyne rerceiver ? Explain. (5 marks)

Or

Turn over

14. Draw and explain the working of a superheterodyne receiver. Also write the advantages.

15. Draw the block diagram of a monochrome TV receiver and explain the working.

Or

16. (a) Why the colors difference signals are converted to I and Q signals in NTSC system ? Explain. (5 marks)

(b) What is a composite video signal ? Explain. (7 marks)

17. (a) Draw the block diagram of a basic radar system and explain the working. (7 marks)

(b) Write the applications of radar. (5 marks)

Or

18. (a) Draw and explain a delay line canceller. (6 marks)

(b) What is blind speed ? Explain. Also explain the method to overcome blind speed. (6 marks)

19. What is Geosynchronous satellite ? How is it different from Geostationary satellite ? Also write the advantages and disadvantages.

Or

20. Explain about :

(i) DA—FDMA. (6 marks)

(ii) DA—TDMA. (6 marks)

[5 × 12 = 60 marks]