Total No. of Questions—**8**] [Total No. of Printed Pages—**3**

Seat No.	

[5352]-538

S.E. (Electronics/E & TC) (II Semester) EXAMINATION, 2018

ANALOG COMMUNICATION

(2015 PATTERN)

Time : Two Hours **Maximum Marks : 50**

N.B. :— (*i*) Neat diagrams must be drawn wherever necessary.
(*ii*) Figures to the right indicate full marks.
(*iii*) Assume suitable data, if necessary.

1. (*a*) What are the different types of amplitude modulation ? Explain any *one* in detail. [6]

(*b*) For receiver with IF and RF frequencies of 455 kHz and 900 kHz respectively. Determine : [6]

(*i*) The local oscillator frequency

(*ii*) Image frequency

(*iii*) Image frequency rejection ratio for Q of 80.

Or

2. (*a*) Draw and explain phase shift method of SSB-SC modulator. [6]

(*b*) AM transmitter has carrier of 550 Watt and modulated at depth of 65%, find the total power in transmitted wave and power saving in the following cases : [6]

(*i*) DSBSC

(*ii*) SSBSC.

P.T.O.

3. (*a*) Explain the performance characteristics of receiver with response curve : [6]

(*i*) Sensitivity

(*ii*) Selectivity

(*iii*) Fidelity.

(*b*) A carrier is frequency modulated with a sinusoidal signal of 2 kHz resulting in frequency deviation of 5 kHz :

(*i*) Find bandwidth and modulation index of modulated wave.

(*ii*) If amplitude of modulating sinusoidal signal is increased by 3 and its frequency is halved. Find maximum frequency deviation and bandwidth of new modulated signal. [6]

Or

4. (*a*) What neat phasor diagram explain balanced slope detector in FM. [6]

(*b*) FM wave is represented by the following equation, $V = 10 \sin [5 \times 10^8 t + 4 \sin 1250t]$. Calculate :

(*i*) Carrier and modulating frequency

(*ii*) Modulation index and maximum deviation

(*iii*) Power dissipated by FM wave in 5Ω resistor. [6]

5. (*a*) Derive the expression to calculate effective noise for series and parallel connection for resistors. [7]

(*b*) Define the terms : [6]

(*i*) Noise figure 1D Noise temperature

(*ii*) Noise bandwidth.

Or

6. (*a*) A mixer stage has a noise figure of 20 dB and this is preceded by amplifier that has a noise figure of 9 dB and an available power gain of 15 dB. Calculate the overall noise figure referred to input. [6]

(*b*) Explain the performance of SSBSC in the presence of noise. [7]

7. (*a*) With suitable example, explain band limited and time limited signal. [6]

(*b*) Discuss PWM generation and detection in detail. [7]

Or

8. (*a*) State sampling theorem and discuss its types. [6]

(*b*) Differentiate between pulse analog modulation and pulse digital modulation. Discuss pulse code modulation. [7]