



Name :

Roll No. :

Invigilator's Signature :

CS/B.TECH (EE)/SUPPLE/SEM-8/EE-802A/2010

2010

COMMUNICATION ENGINEERING

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following :

10 × 1 = 10

- i) A signal $g(t)$ delayed by t seconds is represented by
- a) $g(t - T)$ b) $g(t + T)$
- c) $g(T - t)$ d) none of these.
- ii) Bandwidth requirement for theoretical FM is
- a) 106.2 MHz b) 92.7 MHz
- c) 93.3 MHz d) infinity.
- iii) The intermediate frequency used for a superheterodyne AM receiver is
- a) 545 kHz b) 455 kHz
- c) 815 kHz d) 650 kHz.



GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

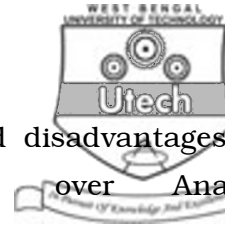
2. How can a balanced modulator be used to generate a DSB-SC signal ?
3. Explain with sketch, the difference between PWM, PAM and PPM.
4. Why are FM and PM called inseparable ?
5. What is the function of MODEM ? Explain.
6. a) What is Apogee ?
b) What is azimuth angle ?

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

7. a) Draw the block diagram of a simple superheterodyne AM receiver and explain its principle of operation. 10
b) What is image frequency ? Find out the value of image frequency for an input signal of 1000 kHz to an AM superheterodyne receiver. 5



8. a) Discuss the relative advantages and disadvantages of Digital Communication system over Analog Communication system. 5
- b) Give the block diagram of generation and detection process of a PCM and explain its various blocks. 10
9. a) Explain the principle of detection of FM signal using Balanced Slope detector circuit with proper diagram. 11
- b) What is Carson's Rule ? 4
10. a) State and explain Shanon's channel capacity theorem. 2 + 4
- b) Draw the block diagram of a Satellite Communication system and explain. 6
- c) What do you mean by Uplink and Downlink in Satellite systems ? 3
11. Write short notes on any *one* of the following : 15
- a) A to D Converter
- b) Balanced Modulator
- c) TDM and FDM systems
- d) Ring Modulator.
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