

B.E. Seventh Semester (Electrical & Electronics Engineering) (CGS)
10400 : Electronics Communication : 7 EX 02

P. Pages : 2

Time : Three Hours



AU - 2912

Max. Marks : 80

- Notes :
1. Due credit will be given to neatness and adequate dimensions.
 2. Assume suitable data wherever necessary.
 3. Illustrate your answer necessary with the help of neat sketches.
 4. Use of pen Blue/Black ink/refill only for writing the answer book.

1. a) Derive the relation between noise voltage and Bandwidth. 7
b) Explain the effect of different types of noise in communication. 7

OR

2. a) What is noise? Give the frequency domain description and obtain the expression for total noise power. 7
b) What is bandwidth? Explain bandwidth requirement for different types of signals. 7
3. a) What is modulation? Explain the need of modulation. 7
b) Derive the relation between bandwidth and modulating frequency in AM. 6

OR

4. a) Write a short note on:- 8
i) Amplitude modulation ii) Frequency modulation
iii) Phase modulation iv) Modulation Index
b) Derive an expression for power carried by an AM wave. 5
5. a) Explain with the circuit diagram, the generation of DSB-SC by using FET Balance modulator. 6
b) Derive mathematical expression for Amplitude modulated wave and discuss its frequency spectrum. 7

OR

6. a) Compare DSBFC, DSBSC and SSB-SC Amplitude modulation. 6
b) Explain the generation of SSB-SC by phase shift method. 7
7. a) Draw and explain the block diagram of an AM superheterodyne radio receiver along with waveforms. 7
b) Explain selectivity, sensitivity and fidelity of an AM Receiver. 6

OR

- | | | | |
|----|----|---|---|
| 8. | a) | Discuss the need of AGC in detail. | 6 |
| | b) | Explain the working of Diode detector in detail. | 7 |
| 9. | a) | Explain the method of FM generation using varactor diode. Give the difference between Narrowband and wideband fm. | 7 |
| | b) | What do you mean by pre-emphasis and de-emphasis in FM? Why it is not required in AM? Explain. | 7 |

OR

- | | | | |
|-----|----|--|---|
| 10. | a) | Derive the expression for FM signal. Draw its spectrum and discuss it. | 8 |
| | b) | Explain the working of Indirect method of FM generation. | 6 |
| 11. | a) | Explain the operation of balanced slope detector using a circuit diagram and response characteristics. | 7 |
| | b) | Explain FM stereo reception system with the help of block diagram. | 6 |

OR

- | | | | |
|-----|----|--|---|
| 12. | a) | Explain the operation of Foster-Seeley discriminator with circuit diagram. | 6 |
| | b) | Differentiate between the single slope and balanced slope FM detector. | 7 |
