



WEST BENGAL STATE UNIVERSITY
B.Sc. Honours/Programme 3rd Semester Examination, 2022-23

ELSHGEC03T/ELSGCOR03T-ELECTRONICS (GE3/DSC3)

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.
All symbols are of usual significance.*

GROUP-A

1. Answer any **five** questions from the following: 2×5 = 10
- (a) Why the modulation is needed for communication?
 - (b) What is over modulation? Draw an over-modulated wave.
 - (c) What do you mean by narrowband and wideband FM?
 - (d) What is signal-to-noise ratio?
 - (e) What are the advantages of digital representation of a signal?
 - (f) State the sampling theorem.
 - (g) How the PWM differ from PAM?
 - (h) What is Amplitude Shift Keying (ASK)?

GROUP-B

Answer any **six** questions from the following

5×6 = 30

2. Explain the generation of AM signal using transistor. 5
3. Briefly describe the detection of AM signal using square-law detectors. 5
4. Define FM. Draw a neat FM waveform and derive the expression for FM. 1+4
5. (a) What are disadvantages of FM system? 2+2+1
(b) What are the types of FM detectors?
(c) State the Carson's rule.
6. Briefly explain — Proof of sampling theorem. 5
7. A 400 watts carrier is modulated to a depth of 75 percent. Find the total power in the amplitude modulated wave. Assume the modulating signal to be a sinusoidal one. 5
8. Differentiate between PAM, PWM and PPM. 5
9. With neat sketches, explain the pulse code modulation (PCM) technique. 5
10. Define Quantization. What is quantization error and what is the maximum value? 2+2+1
11. Explain about Geo-stationary and near Geo-stationary orbits. 5

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