

084

Code : 15EC33T

Register
Number

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III Semester Diploma Examination, Oct./Nov.-2019

ANALOG COMMUNICATION

Time : 3 Hours]

[Max. Marks : 100

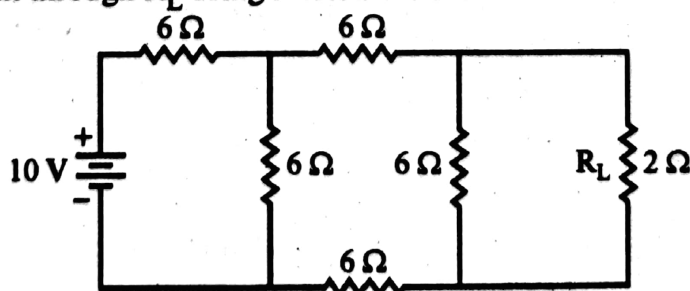
- Instructions :** (i) Answer any six questions from Part – A
(ii) Answer any seven full questions from Part – B.

PART – A

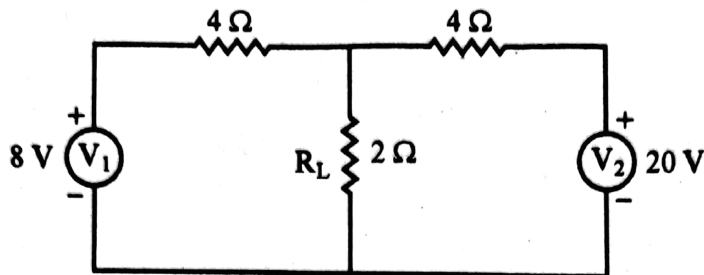
1. State superposition theorem. List the steps to solve a network using superposition theorem. 5
2. State and explain Maximum Power transfer theorem with a suitable example. 5
3. List the comparisons of series and parallel resonance circuit. 5
4. Derive an expression for series resonant frequency of the circuit. 5
5. Explain the need of impedance matching in a transmission line. 5
6. Define transmission line. Write an electrical model of a transmission line. 5
7. Define the following : 5
 - (i) Polarization
 - (ii) Power gain
 - (iii) Antenna efficiency
8. Explain End-fire array with a neat diagram. 5
9. Define modulation and list the types of Analog modulation techniques. 5

PART – B

10. Find the current through R_L using Norton's theorem. 10



11. Find the current through R_L using Thevinin's theorem.



12. (a) Define resonance. Mention types and its applications. 5
 (b) Define Attenuator and write the classification of Attenuators. 5
13. Design a High Pass Filter (T and π type) to have a cutoff frequency of 1 kHz and load impedance of 500 ohms. 10
14. Derive the expressions for secondary constants in terms of primary constants of transmission line. 10
15. (a) Compare different modes of wave propagation. 5
 (b) Explain the working of parabolic reflector. 5
16. (a) Derive modulation index in terms of V_{\max} and V_{\min} . 5
 (b) Explain the working of diode-amplitude modulator with a neat circuit diagram. 5
17. A sinusoidal carrier voltage, $V_c = 80 \cos 2\pi 10^5 t$ is amplitude modulated by a sinusoidal voltage $V_m = 32 \cos 2\pi 10^3 t$. Find : 10
 (i) Percentage of modulation
 (ii) Frequency and amplitude of each side band
 (iii) RMS value of modulated carrier voltage.
18. (a) List the differences between AM and FM. 5
 (b) Define : 5
 (i) Selectivity
 (ii) Sensitivity
 (iii) Gain
 (iv) Fidelity
 (v) Noise Figure
19. Explain the ratio detector method of FM detection with a neat diagram. 10