



QP CODE: 26019349



26019349

Reg No :

Name :

M.Sc DEGREE (CSS) EXAMINATION, MARCH 2026

Fourth Semester

M Sc ELECTRONICS

ELECTIVE - EL800402 - ADVANCED ELECTROMAGNETICS

2019 Admission Onwards

5EDFB9E2

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

Weight 1 each.

1. State the boundary conditions in Maxwell's equation.
2. What are transmission line equations?
3. What are the uses of Smith chart?
4. List out the various devices that work on velocity modulation.
5. What is the operating principle of reflex klystron?
6. Name the materials used to make transferred electron devices.
7. What are the applications of attenuators?
8. What are phase shifters and mention their applications?
9. Define magnetic vector potential.
10. Define Directivity of an antenna.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

Weight 2 each.

11. What is Poynting vector and how it is related to power flow of an electromagnetic wave?
12. Explain the propagation of a uniform plane wave in a lossy media.
13. What are the different characteristics of transmission lines?





14. A transmission line has a characteristic impedance of $50 + j0.01$ ohms and is terminated in a load impedance of $73 - j42.5$ ohms. Calculate (a) the reflection coefficient (b) the standing wave ratio.
15. Explain how bunching is occurred in a Magnetron.
16. Explain how bunching is occurred in travelling wave tube. Mention the applications of TWT.
17. Explain the S-parameters in an EH-plane Tee.
18. What is an isotropic antenna? Explain the term radiation resistance.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

Weight 5 each.

19. Discuss the polarization in uniform plane waves.
20. Explain the TM mode propagation in a hollow wave guide.
21. Discuss how velocity modulation is carried out in two cavity Klystron amplifier.
22. Explain the working and applications of directional couplers.

(2×5=10 weightage)

