

QP CODE:103018

Reg. No:

**First Year B.Sc (MRT) Degree Supplementary Examinations
March 2026**

General Physics and Electronics

Time: 3 Hours

Total Marks: 100

- *Answer all questions to the point neatly and legibly • Do not leave any blank pages between answers • Indicate the question number correctly for the answer in the margin space*
- *Answer all parts of a single question together • Leave sufficient space between answers*
- *Draw table/diagrams/flow charts wherever necessary*

Essays

(2x20=40)

1. What are ultrasonic waves and what is its significance in medical diagnostics.
Explain the production of ultrasonic waves using piezoelectric effect.
2. Explain diffraction and distinguish between Fresnel and Fraunhofer diffractions.
Explain in detail how can a plane transmission grating be used to determine an unknown wavelength.

Short notes:

(8x5=40)

3. Electromagnetic spectrum and the method of production of most energetic waves.
4. Double refraction and half wave plate.
5. Ferro magnetism and properties of ferro-magnetic materials with examples.
6. Growth of dc current in a CR circuit and its time constant.
7. Halfwave rectifier and its ripple factor.
8. Simple harmonic oscillations and the expression for potential energy.
9. Conversion of galvanometer into voltmeter and its total resistance.
10. Working of bistable multivibrator.

Answer briefly:

(10x2=20)

11. What are the uses of FET.
12. Write the expression for the frequency of Hartley oscillator and explain the terms.
13. Explain the working of capacitor filter.
14. What is forced harmonic oscillation.
15. Write any two disadvantages of eddy currents.
16. What is magnetic hysteresis.
17. What is 'population inversion' in the case of LASERs.
18. What are Stokes and anti-Stokes lines in Raman scattering.
19. What is the mean life of a radioactive sample.
20. What is phosphorescence.
