

QP CODE:103018

Reg. No:

**First Year B.Sc (MRT) Degree Supplementary Examinations
September 2024
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. With a neat diagram explain the working of a full wave rectifier. What are ripples in the output of a rectifier. Explain the working of filters.
2. Explain simple harmonic oscillations. Obtain the differential equation and its solutions. Also derive the expressions for velocity, acceleration and kinetic energy in SHM.

Short notes:

(8x5=40)

3. Quantum theory of light and its importance.
4. Fresnel and Fraunhofer diffractions.
5. Para magnetism and properties of para-magnetic materials with examples.
6. Growth of dc current in an LR circuit and its time constant.
7. Different types of energy losses in transformers and methods to minimise them.
8. Doppler effect and the general expression for apparent frequency.
9. Interconversion between star and delta connection of resistors.
10. Working of monostable multivibrator.

Answer briefly:

(10x2=20)

11. What are the uses of MOSFET.
12. Write the expression for the frequency of Colpitt's oscillator and explain the terms.
13. Explain how Zener can be used as a voltage regulator.
14. What is magnetostriction.
15. Write any two uses of eddy currents.
16. What is intensity of magnetization.
17. Write any two uses of LASERS.
18. Explain double refraction.
19. What is the reason of energy radiations from a nucleus.
20. What is fluorescence.
