

QP CODE:103018

Reg. No:

**First Year B.Sc (MRT) Degree Regular/Supplementary Examinations
March 2023
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 full wave rectifier and derive an expression for its efficiency
2. Explain series and parallel LCR circuits and derive an expression for their resonance and Q factor

Short notes:

(8x5=40)

3. State and Explain Brewster's Law
4. Derive expression for Fraunhofer type of diffraction
5. Quarter and half wave plates
6. How microchips and integrated circuits are made
7. How a regulated power supply using Zener diode is constructed
8. What are star and delta connections
9. Give a qualitative idea of energy bands in semiconductors
10. Explain how transistor functions as switch

Answer briefly:

(10x2=20)

11. Write four applications of lasers
12. What is an optic fibre
13. What is Raman Effect
14. What is an intrinsic semiconductor
15. Write two applications of ultrasonic waves
16. What is meant by RMS value of current
17. Write two properties of Nuclear forces
18. Mention the uses of Polaroid
19. Explain with a neat diagram, the stimulated emission of radiation
20. Explain about Wave-Guides
