

QP CODE:103018

Reg. No: .....

**First Year B.Sc (MRT) Degree Supplementary Examinations  
September 2022  
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. Define radioactivity. Explain production of artificial radioactivity and its different modes of decay with example
2. Explain the production of ultrasound its properties and working using piezoelectric effect and its uses.

**Short notes:**

**(8x5=40)**

3. Transformer losses
4. Distinguish between fluorescence and phosphorescence.
5. Average value of AC. Derive the relation between RMS value and peak value of an AC
6. Diffraction of light. Describe the experiment to demonstrate diffraction at single slit.
7. Give the statement of Rayleigh criterion.
8. Write a short note on Rectifiers.
9. State faraday law of electromagnetic induction and explain three methods of producing induced EMF.
10. Explain mutual induction briefly.

**Answer briefly:**

**(10x2=20)**

11. Difference between e.m.f and potential difference.
12. State the condition that must satisfied for the light sources are coherent
13. Principal of optical fiber and its two application.
14. State properties of semiconductors.
15. A transformer steps up 220V to 2200V. What is transformation ratio.
16. Distinguish between conductor and insulator on the band theory of solids
17. Explain Doppler Effect.
18. Properties of laser.
19. Mention the properties of Ferromagnetic Materials.
20. Derive the expression for effective resistance when three resistors are connected in parallel.

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