

QP CODE:103018

Reg.No:

First Year B.Sc (MRT) Degree Examinations - March 2016

General Physics and Electronics

Time: 3 Hours

Total Marks: 100

- Answer all Questions.
- Draw Diagrams wherever necessary.

Essay

(2x20=40)

1. Explain in detail of production, working and properties of ultrasound using Piezo electric effect and application of ultrasound non-destructive method
2. Explain the forward and reverse bias characteristics of NPN and PNP transistor. Enumerate common emitter transistor amplifier and its importance over common base amplifier

Short notes:

(8x5=40)

3. Define Brewster's law with a diagram. The critical angle of water is 48° . What is the polarizing angle.
4. Explain the formation of the depletion region in an open circuited PN junction.
5. Derive the differential equation of angular SHM in case of compound pendulum
6. Draw the circuit of an op-amp which employs negative feedback with a resistor. Show the voltage polarities and direction of currents through the input and output.
7. State the principle and types of transformer.
8. Define the electromagnetic induction. State Faraday's laws of electromagnetic induction.
9. What do you mean by doping state the necessary condition for doping and methods of doping
10. Explain B-H Curve for ferromagnetic material

Answer briefly:

(10x2=20)

11. Define current and voltage. Give its SI units.
12. What is total internal reflection and refractive index.
13. Mention one assumption of de Broglie's relation
14. Three capacitors are connected in parallel and derive the expression for equivalent capacitor.
15. What are super conductors and its use.
16. Obtain the expression for self induced emf and hence define its SI unit.
17. Distinguish between single and three phase circuits.
18. A 100Hz a.c is flowing in 15mH coil. Find its reactance.
19. Define conductor and insulator on the basis of electrical conductivity. Give its examples
20. Define time constant for growth of charge in R-C circuit.
