

QP CODE:104018

Reg.No:

First Year B.Sc (MRT) Degree Examinations February 2017

Atomic and Nuclear Physics

Time: 3 Hours

Total Marks: 100

- Answer all Questions.
- Draw Diagrams wherever necessary.

Essay

(2x20=40)

1. Explain the Rutherford model on the basis of his experiment on alpha scattering.
2. Define photoelectric effect. Explain the factor effecting the photoelectric current in detail.

Short notes:

(8x5=40)

3. Elementary particle.
4. Aston's mass spectrograph.
5. What is γ decay and various process involved in γ decay.
6. Properties of electromagnetic radiation.
7. Vector atom model.
8. Explain the theory of α -decay. Obtain an expression for kinetic energy of α -particle during decay.
9. Define half life of radioactive substance. Derive the expression of half life.
10. Production of Auger electrons

Answer briefly:

(10x2=20)

11. Ritz combination principle.
12. What is electromagnetic spectrum.
13. Give two uses of each of the following
 - Gamma rays
 - Infrared rays
 - Ultraviolet rays.
14. Show that group velocity of the DE-broglie waves is same as the particle velocity.
15. What is stopping potential in photocell
16. State the laws of photo electricity.
17. Distinguish between nuclear fission and nuclear fusion"
18. Name the classification of elementary particles with example for each.
19. Define the principle of hydrogen bomb.
20. Define isotone and isobar.
