

QP CODE:104018

Reg.No:

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

Atomic and Nuclear Physics

Time: 3 Hours

Total Marks: 100

- Answer all Questions.
- Draw Diagrams wherever necessary.

Essay

(2x20=40)

1. What is nuclear reactor. Explain in detail of construction and working of it.
2. Explain Thomson's parabola method of positive ray analysis discuss its drawbacks

Short notes:

(8x5=40)

3. Explain the theory and method of determination e/m of an electron
4. What is excitation and ionization in relation with energy and potential.
5. Discuss the Sommerfeld's field atom model.
6. Discuss vector atom model.
7. Explain about radioactive equilibrium with appropriate example
8. Explain the term Nuclear fission, nuclear fusion, and nuclear reactor
9. The ^{60}Co radioactive material with 59mCi calculate the strength after 15 years
10. Explain about Aston's spectrograph

Answer briefly:

(10x2=20)

11. What are mesons and mention examples
12. Define specific binding energy and draw binding energy
13. What is Annihilation of a matter
14. Types of chain reaction
15. The merits and demerits of liquid drop model
16. State the principle of uncertainty in relation with de Broglie theory
17. Define isotopes and isobars
18. What is electromagnetic spectrum
19. Ritz combination principle
20. Define Q value of nuclear reaction. Explain (α, n) reaction
