B.Sc. DEGREE EXAMINATION,NOVEMBER 2018
III Year V Semester
Core Major - Paper XI
NUCLEAR PHYSICS

Time : 3 Hours **Max.marks :60**

Section A $(10 \times 1 = 10)$ Marks

Answer any **TEN** questions

1. Give the formula for nuclear radius.
2. Define parity.
3. What is meant by half life of radioactivity?
4. What is radioactivity?
5. What is the use of a particle accelerator?
6. What is a cyclotron?
7. What does the scintillator do?
8. What are the different Nuclear models? What do each of them explain?
9. How many types of elementary particles are there?
10. What is the smallest elementary particle?
11. What are the types of quarks?
12. What is the principle of Ionisation chamber.

Section B $(5 \times 4 = 20)$ Marks

Answer any **FIVE** questions

13. Write short notes on Magic numbers.
14. Derive Mean life of radioactive atoms.
15. Briefly explain the working of cyclotron.
16. Explain the construction of Geiger Muller counter.
17. Write short notes on elementary particles.
18. Calculate the mass of deuterium nucleus if the binding energy per nucleon is 1Mev.
19. Write short notes on Radioactive decay constant.

Section C $(3 \times 10 = 30)$ Marks

Answer any **THREE** questions

20. Describe the shell model of nuclear structure with reference to assumptions andevidences.
21. Explain Laws of radioactive decay.
22. Explain the working of Linear accelerator with neat diagram.
23. Describe Scintillation counter with neat diagram.
24. Discuss the (i) Lattitude effect, (ii) Azimuth effect and (iii) Altitude effect of cosmic rays.

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