SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN (AUTONOMOUS)
(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai — 600 044.
B.Sc. END SEMESTER EXAMINATIONS NOVEMBER-2022
SEMESTER - V
20UPHCT5011 - Nuclear Physics

Total Duration : 2 Hrs 30 Mins.   **Total Marks : 60**

Section A

Answer any **SIX** questions $(6 \times 5 = 30$ Marks$)$

1. Discuss the mass defect and binding energy of a nucleus.

2. What are the assumptions made in liquid drop model? Point out its usefulness and limitations in understanding the nuclear phenomena.

3. State and explain the Geiger Nuttal law.

4. Briefly explain Transient and Secular equilibrium.

5. Give the construction and working of a linear accelerator.

6. What are the constructional features of the bubble chamber? How does the instrument work?

7. Give an account of the mode of operation of a scintillation counter.

8. Explain the latitude and altitude effect in cosmic rays.

Section B

Answer any **THREE** questions $(3 \times 10 = 30$ Marks$)$

9. Give the salient features of the nuclear shell model. List out its merits and demerits.

10. Describe Gamow's theory of α- decay. How far does this explain the Geiger Nuttal law?

11. Describe a construction and action of a cyclotron. Discuss its limitations.

12. Describe a Geiger Muller counter and explain its working as particle detector.

13. Explain the four fundamental interactions among elementary particles.

*****

SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN (AUTONOMOUS)
(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai — 600 044.
B.Sc. END SEMESTER EXAMINATIONS NOVEMBER-2022
SEMESTER - V
20UPHCT5011 - Nuclear Physics

Total Duration : 2 Hrs 30 Mins.   **Total Marks : 60**

Section A

Answer any **SIX** questions $(6 \times 5 = 30$ Marks$)$

1. Discuss the mass defect and binding energy of a nucleus.

2. What are the assumptions made in liquid drop model? Point out its usefulness and limitations in understanding the nuclear phenomena.

3. State and explain the Geiger Nuttal law.

4. Briefly explain Transient and Secular equilibrium.

5. Give the construction and working of a linear accelerator.

6. What are the constructional features of the bubble chamber?
   How does the instrument work?

7. Give an account of the mode of operation of a scintillation counter.

8. Explain the latitude and altitude effect in cosmic rays.

Section B

Answer any **THREE** questions $(3 \times 10 = 30$ Marks$)$

9. Give the salient features of the nuclear shell model. List out its merits and demerits.

10. Describe Gamow's theory of α- decay. How far does this explain the Geiger Nuttal law?

11. Describe a construction and action of a cyclotron. Discuss its limitations.

12. Describe a Geiger Muller counter and explain its working as particle detector.

13. Explain the four fundamental interactions among elementary particles.

*****