

Exam Date & Time: 26-Sep-2020 (10:00 AM - 01:30 PM)



PSG COLLEGE OF ARTS AND SCIENCE

Note: Writing 3hrs: Checking & Inserting Image : 30mins

BSc DEGREE EXAMINATION MAY 2020
(Sixth Semester)

Branch - PHYSICS

NUCLEAR PHYSICS [14PHU20]

Marks: 75

Duration: 210 mins.

SECTION A

Answer all the questions.

- 1) Define packing fraction of nucleus. (2)
- 2) What are nuclear forces? (2)
- 3) State Geiger-Nuttal law. (2)
- 4) What are the properties of gamma rays? (2)
- 5) Give the principle of Wilsons cloud chamber. (2)
- 6) Write any two limitations of the cyclotron. (2)
- 7) Write a note on radio isotopes. (2)
- 8) State nuclear fission. (2)
- 9) Write a note on primary cosmic rays. (2)
- 10) Define pair production. (2)

SECTION B

Answer all the questions.

- 11) Explain binding energy and mass defect of the nucleus. (5)
 - a) [OR] Discuss about nuclear spin and magnetic dipole moment. (5)
 - b)
- 12) (5)

Outline the neutron theory of β -decay.

- a)
[OR] Analyze the laws of successive disintegration. (5)
b)
- 13) Explain the working of ionization chamber. (5)
- a)
[OR] Explain the working of linear accelerator. (5)
b)
- 14) Determine Rutherford's experiment Q-value of the reaction. (5)
- a)
[OR] Explain the nuclear chain reaction. (5)
b)
- 15) Discuss about the latitude effect with neat diagram. (5)
- a)
[OR] Explain the leptons and mesons. (5)
b)

SECTION C**Answer 3 out of 5 questions.**

- 16) Explain about nuclear shell model. (10)
- 17) Explain about half life period and age of earth. (10)
- 18) Describe the construction and working of GM counter. (10)
- 19) Explain the Bohr and Wheeler's theory of nuclear fission. (10)
- 20) Write an essay on elementary particles. (10)

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