

Model Question Paper
Nuclear Chemistry - Part I

12th Standard

Chemistry

Reg.No. :

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I. Answer all the questions.

II. Use Blue pen only.

Time : 01:30:00 Hrs

Total Marks : 45

5 x 1 = 5

Section-A

- 1) The phenomenon of radioactivity was discovered by
(a) Madam curie (b) Pierre curie (c) Henry Becquerel (d) Rutherford
- 2) The most penetrating radiations are
(a) α rays (b) β rays (c) γ rays (d) all are equally penetrating
- 3) In the nuclear reaction, ${}_{92}\text{U}^{238} \rightarrow {}_{82}\text{Pb}^{206}$, the number of α and β particles emitted are
(a) $7\alpha, 5\beta$ (b) $6\alpha, 4\beta$ (c) $4\alpha, 3\beta$ (d) $8\alpha, 6\beta$
- 4) Which one of the following particles is used to bombard ${}_{13}\text{Al}^{27}$ to give ${}_{15}\text{P}^{30}$ and a neutron
(a) α particle (b) deuteron (c) proton (d) neutron
- 5) The reaction ${}_5\text{B}^8 \rightarrow {}_4\text{Be}^8$ takes place due to
(a) α decay (b) β decay (c) electron capture (d) positron decay

Section-B

5 x 3 = 15

- 6) Define radio activity.
- 7) What is half life period.
- 8) Write two difference between chemical reaction and nuclear reaction.
- 9) What is Q value of a nuclear reaction?
- 10) What are the types of nuclear reaction. Give example for each type.

Section-C

5 x 5 = 25

- 11) What is radioactivity? How was the phenomenon discovered?
- 12) What is nuclear fission? What are controlled and uncontrolled fission reactions? How can the energy released in such reactions be used for practical purposes?
- 13) What is nuclear fusion? How do nuclear fusion reactions differ from fission reactions?
- 14) Differentiate chemical reactions from nuclear reactions.
- 15) Explain the use of radioactive isotopes with specified examples.
