

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION MAY 2019
(Sixth Semester)

Branch- CHEMISTRY

INORGANIC CHEMISTRY -II

Time : Three Hours

Maximum : 75 Marks

SECTION-A (20 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (10 x 2 = 20)

- 1 What is meant by lanthanide contraction?
- 2 What are f-block elements? Why are they so called?
- 3 What are actinoids?
- 4 What are transuranic elements?
- 5 What is meant by the half-life period of a radioactive substance?
- 6 What is meant by mass effect?
- 7 Distinguish between isobars and isotones.
- 8 Give the isotopes of hydrogen.
- 9 What is meant by ionizing solvent? Give one example.
- 10 What are covalent hydrides? Give one example.

SECTION - B (25 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 5 = 25)

- 11 a Discuss the electronic configurations and oxidation states of lanthanides.
OR
b Give any two consequences of lanthanide contraction.
- 12 a How is thorium extracted from its ore?
OR
b How is uranium extracted from its ore?
- 13 a State and explain Soddy's group-displacement law.
OR
b Write down the applications of radioactive isotopes in industrial field.
- 14 a Discuss the importance of Aston's mass spectrograph.
OR
b How are the isotopes separated by gaseous diffusion method?
- 15 a Discuss any five reactions in liq-NH₃ and non aqueous solvent.
OR
b What are nitrides? How are they prepared? Give any two uses of ionic nitrides.

SECTION - C (30 Marks)

Answer any THREE Questions

ALL Questions Carry EQUAL Marks (3 x 10 = 30)

- 16 How are the lanthanide elements separated? Write any two methods.
- 17 a Write down any five differences between lanthanides and actinides. (5)
b Discuss briefly the colour and oxidation states of actinides. (5)
- 18 How is radioactivity detected and measured by (i) Wilson's cloud chamber method and (ii) Geiger - Muller counter method? (5 + 5)
- 19 How are the isotopes separated by (i) Electromagnetic method and (ii) thermal diffusion method? (5+5)