UNIVERSITY OF THE PUNJAB

Seventh Semester 2016
Examination: B.S. 4 Years Programme

Roll No. 6401

PAPER: Inorganic Chemistry (Sp. Theory-II)
Course Code: CHEM-407

TIME ALLOWED: 2 hrs. & 30 mins.
MAX. MARKS: 50

Attempt this Paper on Separate Answer Sheet provided.

Q.No.2: Short Questions (2x 10=20)

Answer the following:

(i) What is standard hydrogen electrode measurement formula? Name that equation.
(ii) Give an example of complexation reaction in liq. BrF_3.
(iii) What is levelling effect of solvents?
(iv) Give an example of neutralization reaction in liq. HF.
(v) What is the Dielectric constant of water and Liq. NH_3?
(vi) What is Perovskite?
(vii) Why Liq. HF is not stored in glass bottles?
(viii) Discuss the role of two volatile oxides in environmental chemistry?
(ix) Name different types of nuclear particles
(x) Name different types of projectile accelerators

Q.No.3: Long Questions (5 x 6=30)

(i) Describe the chemistry of Spinels.
(ii) Derive the mathematical relationship between half- life, decay constant and initial concentration of radioactive material.
(iii) Describe Metal chemistry in Liq NH_3 with suitable examples.
(iv) Describe acid-base and complexation occurring in Liq SO_2.
(v) Discuss the role of metal oxides as high temperature superconductors.
(vi) Types of molten salt system and methods to study reactions in them

UNIVERSITY OF THE PUNJAB

Seventh Semester 2015
Examination: B.S. 4 Years Programme

Roll No. .....

PAPER: Inorganic Chemistry (Sp. Theory-II)
Course Code: CHEM-407

TIME ALLOWED: 2 hr
MAX. MARKS: 50

Attempt this Paper on Separate Answer Sheet provided.

Short Questions

Give short answers to the following questions. Each question carries 2 marks. (2 × 10 =

1. What do you know about Lux-Flood acid base concept?
2. Why acetic acid behaves as a strong acid in liquid ammonia
3. Write the names of different types of projectile accelerating machines?
4. Why SiO_2 and SO_3 tend to form polymer?
5. Which types of holes are present in hexagonal close packing and cubic close pack
6. Can metal oxides conduct electricity in solid state, if yes give reason?
7. What do you know about spinels?
8. Name different types of nuclear particles?
9. What are the units of radioactivity?
10. Prove that angular momentum remains conserved when a beta-particle is emitted
    nucleus.

Long questions

1. Write a natural and an artificial radioactive series.
2. Write applications of Artificial Radioactive series.
3. (a) What do you know about high temperature super-conductors?
   (b) Give advantages and disadvantages of using liq. Ammonia as a solvent?

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UNIVERSITY OF THE PUNJAB

Seventh Semester 2014
Examination: B.S. 4 Years Programme

Roll No. 3448

PAPER: Inorganic Chemistry (Sp. Theory-II)
Course Code: CHEM-407

TIME ALLOWED: 2 hrs. & 30 mins.
MAX. MARKS: 50

Attempt this Paper on Separate Answer Sheet provided.

Short Questions

Give short answers to the following questions. Each question carries 2 marks. (2 × 10 = 20)

1. Non-polar solvents have low dipole moment and dielectric constant, comment.
2. Name different types of nuclear particles?
3. Explain the system of metals dissolved in liq. NH_3?
4. How is a positron produced in a nuclear reaction?
5. How does the number of protons change in a nucleus when an α and then a β particle is emitted?
6. What are the units of radioactivity?
7. Explain the difference between chemical and nuclear reactions?
8. What is the periodic trend of acidic strength of oxides?
9. Draw a labeled diagram of Geiger-Muller Counter.
10. What are the environmental issues caused by oxides of nitrogen?

Long Questions

(3 × 10 = 30)

Attempt all the questions. Each question carries 10 marks.

Q#1 (a) What are Spinels? How are they classified? Give their uses. (5)

(b) Give the chemistry of H_2O_2. (5)

Q#2 (a) Give applications of Artificial Transmutation Reactions. (6)

(b) A radioactive sample contains 15.8% ^{238}U and 5.3×10^{-6}% ^{226}Ra. If half-life of ^{226}Ra is 1590 years, what is the decay constant of ^{238}U? (4)

Q#3 (a) Compare the following reactions in Water & liq. NH_3. Give two reactions for each. (6)

1) Acid base reactions

2) Redox reactions

3) Solvolysis

4) Complex formation reactions

(b) How Neutralization reactions take place in liq. BrF_3? (4)