

PE-262
M.Sc. Chemistry (2nd Semester)
Examination, Jun-2022
Paper-I

Name/Title of Paper-INORGANIC CHEMISTRY
Time : Three Hours]

[Maximum Marks : 80
[Minimum Pass Marks : 29

नोट : दोनों खण्डों से निर्देशानुसार उत्तर दीजिए। प्रश्नों के अंक उनके दाहिनी ओर अंकित हैं।

Note : Answer from both the Sections as directed. The figures in the right-hand margin indicate marks.

खण्ड / Section-A

Attempt the following questions:-

1x10=10

- a- Among halide ions f^- , cl^- , Br^- & I^- which is make most stable complex with class an metals?
- b- What is effect of chelation on stability of a complex?
- c- Why SN_2 mechanism is called associative mechanism?
- d- What are labile and inert complexex?
- e- Write an example of two electron transfer reaction.
- f- What are b metalloborane.
- g- Why is CO a α π acceptor ligand?
- h- What are Mono nuclear carbonyls?
- i- What are poly acids?
- j- Write two uses of heteropoly acids.

2- Answer the following questions

2X5=10

- 1- What is stepwise and over all formation constant? How they are inter related?
- 2- What is a nation reaction? Give examples.
- 3- How many types of bonds are found in higher boranes? Write their name only.
- 4- What are Dinitrogen complexes? Give two examples.
- 5- Write the three properties of heteropoly acids.

SECTION-B

12X5=60

3- Explain the term stepwise and over all foremation constant. How the nature of metal ions affect the stability constant.

Or

- a- Explain the trends in stepwise formation constant.
 - b- Write a note on chelate effect.
- 4- Describe the Kinetic application of valance bond and crystal field theories.

Or

Write notes on-

- 1- Factors affecting acid hydrolysis.
 - 2- Trans effect.
- 5- Explain the mechanism of substitution reaction in octahedral complexes.

Or

Explain the mechanism of one electron transfer reaction.

- 6- Explain the structure and bonding in metal carbonyls.

Or

Write notes on-

- 1- Important reactions of metal nitrosyls.
 - 2- Tertiary phosphine as ligand.
- 7- What are Isopoly acids? Discuss the isopoly tungstaten and isopoly vandatesw?

Or

Discuss the structure and use of heteropoly acids and salt of Mo and W.