

- b) i) Give one example of ionic and covalent carbides. Write their use.
- ii) At the end point of titration of iodine by thiosulfate, bluish color produced by starch indicator disappears. But if the titration flask is allowed to stand for two or three minutes, the indicator turns blue. Explain the facts and write reactions.
- c) Write the hydrolysed products of PCl_5 and PCl_3 and discuss about the mechanism.

INTER B. SC. EXAMINATION, 2017

(2nd Semester)

CHEMISTRY (SUBSIDIARY)

PAPER - VIII S

Time : Two hours

Full Marks : 50

Use a separate answerscript for each group.

GROUP - A

1. a) Describe the similarities and differences between the Physisorption and Chemisorption phenomena.
- b) Name two methods by which rate of adsorption of a gas on solid substrate may be estimated. Define the Isosteric Enthalpy of Adsorption and describe how its value is estimated experimentally from a set of adsorption experiments.
- c) Describe briefly the Langmuir-Hinshelwood mechanism of surface catalytic reactions along with the associated rate law expression and comment on the expected nature of temperature dependence of the rates for such reactions. 3+(1+3)+3
2. a) Describe very briefly with example, the preparation of a colloidal dispersion by any one of the following chemical methods :

[Turn over

[2]

- i) Double decomposition
 - ii) Hydrolysis
- b) Describe briefly on the phenomena of “Sol Protection” and elaborate on the meaning of the statement – “The Gold Number of Gelatin is 0.005 at room temperature.”
- c) Describe briefly any one of the following :
- i) Kinetic properties of the colloidal particles in a Sol
 - ii) Electro-osmosis of a colloidal solution. 2+3+2

GROUP - B

3. Answer **any three** of the following questions : 3×3
- a) Compare the basic character and dipole moment between Furan and Pyrrole.
 - b) Electrophilic substitution occurs majorly at C-2 position than C-3 in case of Pyrrole – Justify.
 - c) Reactivity of Thiophene > Pyrrole > Furan – Justify with proper reasons.
 - d) Explain the Paal-Knorr Synthesis of Pyrrole with plausible mechanism.

[3]

4. Answer **any one** of the following questions : 2
- a) Write down the pH dependant chemical structures of methyl orange and phenolphthalein.
 - b) Write down the synthetic scheme of Malachite green and indigo.
5. Answer **any two** of the following questions : 3×2
- a) Write down the configuration of D and L-isomers of Glucose and Fructose in Fischer projection.
 - b) What is mutarotation ? Explain with proper example.
 - c) D-Glucose and D-Fructose give identical osazone with phenylhydrazine. – Explain.

GROUP - C

6. Write notes on (**any two**) 4×2
- a) Interhalogen compounds
 - b) Oxoacids of sulfur
 - c) Phosphazenes and cyclophosphazenes
7. Answer **any two** questions : 4×2
- a) i) How can you qualitatively detect silica ? Write reactions.
 - ii) Write composition of Portland cement.

[Turn over