Roll No _____ (To be filled in by the candidate)

(Academic Sessions 2015 – 2017 to 2017 – 2019)

CHEMISTRY 219-(INTER PART – II) Time Allowed : 2.40 hours

PAPER – II (Essay Type) GROUP – II Maximum Marks : 68

SECTION – I

2. Write short answers to any EIGHT (8) questions : 16

(i) What is hydration energy? Give an example.

(ii) Why diamond is a non-conductor but graphite is a fairly good conductor?

(iii) How are lime and sand used to make glass?

(iv) How does orthoboric acid react with : (a) Sodium hydroxide (b) Ethyl alcohol

(v) Why is CO_2 a gas at room temperature while SiO_2 is a solid?

(vi) Why are borate glazes preferred over silicate glazes?

(vii) H_2SO_4 is a powerful dehydrating agent. Prove it giving two examples.

(viii) Why does aqua regia dissolve gold and platinum?

(ix) Write two similarities of oxygen and sulphur.

(x) What do you mean by prilling of urea?

(xi) State the reactions that take place during first 24 hours by the setting of cement.

(xii) How are detergents threat to aquatic animal life?

3. Write short answers to any EIGHT (8) questions : 16

(i) How coal is produced from remain of trees?

(ii) Write structural formulas of : (a) 1,3-Butadiene (b) Vinyl bromide

(iii) State Markownikov's rule and give an example.

(iv) Write down the structural formulas of : (a) Biphenyl (ii) Diphenylmethane

(v) How the cyclic structure of benzene got verified?

(vi) Write down any two methods of preparation of alkyl halides.

(vii) What is Grignard's reagent? How is it prepared?

(viii) Absolute alcohol cannot be prepared by fermentation process. Give justification.

(ix) How can you distinguish between methanol and ethanol?

(x) What are essential and non-essential amino acids?

(xi) How will you carry out following conversion :
Acetic acid into acetone.

(xii) Write down the name and the structural formulas of two acidic amino acids.

4. Write short answers to any SIX (6) questions : 12

(i) Which halogen sublimes as violet vapours?

(ii) Write reaction of $C\ell_2$ with cold and hot NaOH.

(iii) Halogens act as oxidizing agents, justify.

(iv) Give systematic name of $Na_3[CoF_6]$.

(v) Write Fehling's solution test.

(Turn Over)

4. (vi) How will you distinguish between ethanal and propanal?

(vii) What are polysaccharides?

(viii) Glycogen is called animal starch, give reason.

(ix) What is meant by denaturation of protein?

SECTION – II

Note : Attempt any THREE questions.

5. (a) Write similarities and differences of halogens with hydrogen. 4

(b) Complete and balance the following equations : 4

(i) $Mg(NO_3)_2 \xrightarrow{Heat}$ (ii) $Ca(OH)_2 + SiO_2 \rightarrow$

(iii) $Be + O_2 \rightarrow$ (iv) $Be + NaOH \rightarrow$

6. (a) How will you prepare steel by Bessemer's process? 4

(b) What is acid rain, how does it affect our environment? 4

7. (a) What is meant by orbital hybridization? Explain sp hybridization with an example. 4

(b) Draw structural formulae for the following compounds : 4

(i) m-Chlorobenzoic acid (ii) 2, 4, 6-Trinitrotoluene

(iii) p-Dibenzylbenzene (iv) p-Nitroaniline

8. (a) How would you prepare alkanes from carboxyl compounds? 4

(b) Discuss the acidic behaviour of phenol. 4

9. (a) Write a note on oxidation of aldehydes and ketones. 4

(b) Define β-Elimination reactions. Discuss in detail E1 reaction with mechanism. 4