



DJ-003-001203

Seat No. _____

B. Sc. (Sem. II) (CBCS) Examination

March – 2022

Chemistry : Paper-201

(Old Course)

Faculty Code : 003

Subject Code : 001203

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

1 Answer all questions in short : 20

- (1) Give full form of FCC.
- (2) What will be the colour of ZnO in cold and hot condition ?
- (3) Combination of two atomic orbitals will lead to formation of what ?
- (4) What will be the nature of Li_2 molecule ?
- (5) What will be the geometry of $\text{Cu}(\text{CN})_2$?
- (6) Give the co-ordination number of $\text{Ni}(\text{CO})_4$.
- (7) Give IUPAC name of $\begin{array}{ccccc} \text{CH}_2 & - & \text{CH} & - & \text{CH}_2 \\ | & & | & & | \\ \text{OH} & & \text{OH} & & \text{OH} \end{array}$.
- (8) Give the structure for methoxy methane.
- (9) Aniline is miscible in _____.
- (10) Give structure for diphenylamine.
- (11) A galvanic cell converts chemical energy to which energy ?
- (12) What is electroplating ?
- (13) Define photochemistry.
- (14) Give the term for Einstein's energy expression.
- (15) In Haber's process _____ is used as catalyst.
- (16) In contact process _____ is used as Poison.
- (17) Give formula for borax used in qualitative analysis.
- (18) Which colour flame is observed in flame test of strontium ?
- (19) Acidity of water is due to what ?
- (20) Give full name of EDTA.

2 (A) Answer any three for the following questions : 6

- (1) Define the term crystal lattice.
- (2) Define bonding molecular orbital.
- (3) Explain co-ordination isomerism.
- (4) Give physical properties of phenols.
- (5) Explain Williamson synthesis.
- (6) Give structure for p-toluidine and N, N-dimethyl aniline.

- (B) Answer any **three** for the following question : **9**
- (1) Discuss the crystal structure of Fluorite (CaF_2).
 - (2) Explain gerade and ungerade molecular orbitals.
 - (3) Draw Possible structures for co-ordination no. 5.
 - (4) Discuss relative acidity of alcohols and phenols.
 - (5) Give the method of preparation of diazonium salt.
 - (6) What are amines ? Explain different types of amines.
- (C) Answer any **two** for the following : **10**
- (1) Derive Max-Born equation for the calculation of lattice energy.
 - (2) Give the comparison of MOT and VBT.
 - (3) Explain Fries rearrangement with mechanism.
 - (4) Discuss effect of substitution of basicity of aromatic amines.
 - (5) Explain Hinsberg's method for separation of amines.
- 3** (A) Answer any **three** for the following questions : **6**
- (1) Give the construction of gas electrode.
 - (2) Give the photochemical reaction between hydrogen and chlorine gas.
 - (3) Define homogeneous and heterogeneous catalyst.
 - (4) What is common ion effect ?
 - (5) What is solubility product of a substance ?
 - (6) Give the types of hardness of water with definition.
- (B) Answer any **three** for the following : **9**
- (1) Explain electrolytic cell.
 - (2) Give difference between thermochemical and photochemical reactions.
 - (3) Discuss characteristics of catalysis.
 - (4) Explain use of NH_4Cl and NH_4OH in qualitative analysis.
 - (5) Define promoter catalyst with two examples.
 - (6) Define TS, TDS and TSS.
- (C) Answer any **two** for the following : **10**
- (1) Write a short note on electrochemical series.
 - (2) Write a note on fluorescence and phosphorescence.
 - (3) Explain enzyme catalysis.
 - (4) Discuss charcoal cavity test and cobalt nitrate test.
 - (5) Discuss determination of hardness of water by complexometric method.