



**MBJ-003-001203**

Seat No. \_\_\_\_\_

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

**March / April - 2018**

**Chemistry : Paper - 201**

*(Old Course)*

**Faculty Code : 003**

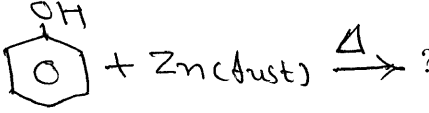
**Subject Code : 001203**

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

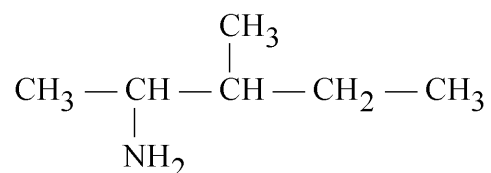
[Total Marks : 70

- Instructions :** (1) All question are compulsory.  
(2) Question (2) and (3) carries 25 marks with internal option.

**1 Answer the following : 20**

- (1) Define unit cell
- (2) Write only equation for the calculation of lattice energy
- (3) Explain antibonding MO with example.
- (4) What is trans isomer ?
- (5) What is gerade molecular orbitals.
- (6) Explain ; stereo isomerism
- (7) Give IUPAC nomenclature  $\text{OH}-\text{CH}_2-\text{CH}_2-\text{OH}$
- (8) Complete the reaction  ?
- (9) Give conversion of acetamide from aniline
- (10) What is photosensitization ?
- (11) Define catalyst with example.
- (12) Define : electrode
- (13) What is buffer solution ?

- (14) Explain : Common ion effect.
- (15) Which positive radical gives golden yellow flame ?
- (16) What is TDS ?
- (17) What is catalytic poison ?
- (18) Give general formula of fully saturated alcohol.
- (19) Explain : photoelectric cell.
- (20) Give IUPAC nomenclature of



2 (a) Answer any **three** of following : 6

- (1) Explain ZnS Type crystal structure.
- (2) Explain polymerization isomer.
- (3) Explain cumene process for phenol.
- (4) Give the method of preparation of diazonium salt.
- (5) Give conversion of P- bromo Aniline from Aniline.
- (6) Explain physical properties of ether.

(b) Answer any **three** of following : 9

- (1) Draw energy level diagram of NO molecule.
- (2) Give difference between BMO and ABMO.
- (3) Explain basic character of amines.
- (4) Explain : ionisation and hydrate isomerism with example.
- (5) Explain : lucas test
- (6) Give the method of preparation of 1° amine.

(c) Answer any **two** of following : **10**

- (1) Describe molecular orbital energy level diagram of  $O_2^-$ .
- (2) Derive Max-Born equation for the calculation of lattice energy.
- (3) Give types of isomerism and discuss any one with example.
- (4) Explain Koble Schmitt reaction.
- (5) Explain effect of substitution on basicity of aromatic amines.

**3** (a) Answer any **three** of following : **6**

- (1) Explain in short : Flame test
- (2) What is electrolytic cell ? Explain it.
- (3) Give difference : Reversible and Irreversible cells
- (4) Explain : soap method for water analysis.
- (5) Calculate  $K_{SP}$  of  $Fe(OH)_3$  whose solubility  $1.0 \times 10^{-3}$  M.
- (6) Write short note on charcoal test.

(b) Answer any **three** of following : **9**

- (1) Explain : acid-base catalyst with example
- (2) Explain : complexometric titration
- (3) Explain : decomposition of hydrogen iodide.
- (4) Name the two types of electrochemical cells and define each cell.
- (5) Write short note on : photosensitization.
- (6) Explain : Grotthus-Draper law.

- (c) Answer any **two** of following : **10**
- (1) Give method of calculating of hardness of water.
  - (2) Explain :
    - (a) Lambert's Beer's law
    - (b) Fluorescence
  - (3) Derive Nernts equation and give the use of nernts equation.
  - (4) Explain the relation between  $\Delta G$ ,  $\Delta H$ ,  $\Delta S$  and  $K$ .
  - (5) Write on type of catalyst.
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