

**SAMPLE QUESTIONS**  
**CLASS-T.Y.B. Sc**  
**SEMESTER 5 EXAMINATIONS**  
**(DECEMBER 2020)**  
**SUBJECT: CHEMISTRY**  
**PAPER II**  
**USCH502**

1. The point group of  $\text{NH}_3$  molecule is -----.
  - a)  $C_{3v}$
  - b)  $C_{2v}$
  - c)  $D_{3h}$
  - d)  $D_{2h}$
2. The improper rotation axis in trans dichloroethylene is represented by the symbol-----.
  - a)  $S_2$
  - b)  $S_4$
  - c)  $S_1$
  - d)  $S_3$
3. The number of electrons in bonding  $\pi_{2px}$ ,  $\pi_{2py}$  and  $\sigma_{2pz}$  in NO are ----- and -----.
  - a) 2 and 2
  - b) 4 and 2
  - c) 3 and 1
  - d) 2 and 1
4. Trihydrogen ion in the triangular configuration has ----- and ----- levels.
  - a) Triply degenerate t and double degenerate e
  - b) Doubly degenerate e and triply degenerate t
  - c) Non degenerate a and doubly degenerate e
  - d) Non degenerate a and triply degenerate t
5. The bond order in CO is -----.
  - a) 2
  - b) 3
  - c) 4
  - d) 5

## UNIT 2

1. The radius of iron atom with bcc unit cell structure and unit cell edge equal to 286 pm is -----.
  - a) 134 pm
  - b) 124 pm
  - c) 140 pm
  - d) 220 ppm
  
2. ----- is a type of Surface defect in solids.
  - a) Edge dislocation
  - b) Grain Boundary
  - c) Voids
  - d) Mixed dislocation.
  
3. In HCP close packing structure gets repeated after every ----- layers.
  - a) 2
  - b) 3
  - c) 4
  - d) 5
  
4. ----- is used in measurement of variation in earth's magnetic field before and after earthquake.
  - a) Maglev Train
  - b) Liquid N<sub>2</sub>
  - c) Squid
  - d) Ammeter
  
5. The number of nearest neighbors for an atom is called -----  
---.
  - a) Valency
  - b) Oxidation state
  - c) Coordination number
  - d) Primary Oxidation number

### UNIT 3

1. Lanthanons are placed in the ----- group and ----- period of the periodic table.
  - a) 2 and 6
  - b) 3 and 6
  - c) 4 and 6
  - d) 3 and 7
  
2. In the observed electronic configuration of lanthanons electrons enter ---- ----- orbital after occupation of the 6s.
  - a) 5d
  - b) 6p
  - c) 4f
  - d) 4d
  
3. The lanthanon to be adsorbed second on the ion exchange resin and eluted third during the ion exchange separation of Lanthanons are ----- --- and -----
  - a) Ce and Yb
  - b) Yb and Ce
  - c) Ce and Tm
  - d) Tm and Yb
  
4. Lanthanons are extracted in the form of a ----- in TBP extraction
  - a) Nitrate complex
  - b) Sulphate complex
  - c) NitrateTBP Complex
  - d) Sulphate TBP complex.
  
5. ----- is used as catalysts in hydrogenation of various organic compounds
  - a) Lanthanon fluorides
  - b) Lanthanon oxides
  - c) Misch metal
  - d) Lanthanon nitrates

## Unit 4

1. Liquid  $\text{NH}_3$  is an example of ----- and -----.
  - a) Basic and Non ionizing
  - b) Basic and Ionizing
  - c) Acidic and Ionizing
  - d) Aprotic and Non-Ionizing.
2.  $\text{NOCl}$  has ----- property in Liquid  $\text{N}_2\text{O}_4$ .
  - a) Basic
  - b) Acidic
  - c) Amphoteric
  - d) Protic
3. -----catalyst works on the principle of ----- in manufacture of  $\text{H}_2\text{SO}_4$  by contact process.
  - a)  $\text{V}_2\text{O}_5$  Chemisorption
  - b) Platinized asbestos Chemisorption
  - c) Finely divided Iron Chemisorption
  - d) Platinized asbestos Intermediate Compound formation
4. ----- is the only halogen to form interhalogen of the type  $\text{XY}_7$ .
  - a) I
  - b) Cl
  - c) Br
  - d) F
5. The number of lone pair of electrons on Cl in hypochlorite ion is -----  
-----.
  - a) 4
  - b) 2
  - c) 3
  - d) 1