

SEAT No. _____

[30/A-12]
Eng

No of printed Pages 02

SARDAR PATEL UNIVERSITY
B.Sc. EXAMINATION-2021 (VIth SEMESTER)
B.Sc Sem -6 US06CCHE22(Inorganic Chemistry)

Mark-70

Date:-16-07-2021

Time:-10:00 to 12:00

Note:(i) All questions are to be attempted.(ii) Figures to the right indicate marks.

Q.1 Choose the correct option for the following: (MCQ) 10

- What will be the degeneracy of the ground state for particle in 3dimension box?
(a) 1.5 (b) 1 (c) 3 (d) 2
- Which operator is linear operator.
(a) $()^2$ (b) $\sqrt{\quad}$ (c) d/dx (d) none
- Organo metallic compounds do not include which type of compounds given below?
(a) Carbides (b) carbonates of metals (c) hydrocarbon derivatives (d) none of them.
- Organo metallic compounds are soluble in _____ solvents
(a) non polar (b) polar (c) (a) and (b) both (d) none of them
- What is the value of spin quantum numbe for electron pair ?
(a) 1 (b) 1/2 (c) 2 (d) 0
- What is the value of L for D?
(a) 2 (b) 5 (c) 1 (d) 4
- How many micro state for d^2 configuration?
(a) 20 (b) 45 (c) 21 (d) 3
- Which of the following is white lead?
(a) $2[PbCO_3Pb(OH)_2]$ (b) $Pb(COOH)_2$ (c) $PbCO_3$ (d) PbO
- Galena is ore of _____ ?
(a) Copper (b) Silver (c) Lead (d) nickel
- Ruby copper is an example of _____ ore of copper.
(a) carbonate (b) sulphide (c) both (a) & (b) (d) oxide

Q.2 Fill in the Blanks 08

- For _____ value of λ (Eigen value), wave function ψ is not well-behaved.
(negative, positive)
- The wave function ψ is a function of _____ the wave. (amplitude, wavelength)
- According to spin multiplicity rule the value of ΔS forbidden transition is _____.
(0 , 1)
- Number of positron for d^8 configuration is _____. (0 , 2)
- The colour of ferrocenium is _____. (Blue / yellow)
- _____ is an example of metal olefinic complex? (Zeise Salt, Common Salt)
- _____ is the purest form of Iron . (steel , wrought iron)
- _____ is used as pigment in paint .(Pb , Cu)

Q.3 Answer the following (ANY TEN) 20

- What is an operator. List their name.
- State third postulate of quantum mechanics.
- Define hermitian operator.
- Give preparation of organolithium compounds.
- Define the term : organo metallic compounds.
- Give the reaction of organo metallic compounds with metal salts.
- Explain spectrochemical series.
- Explain Complexes of Zn^{+2} are mostly colourless.
- What is Orgel diagram?
- Give the Friedel-craft alkylation reaction of ferrocene.
- Give the uses of $AgNO_3$.
- Define ore and minerals.

④

(P.T.O.)



Q.4 Answer the following (Attempt any 4 out of 8)

32

- 1 Explain any two postulate of quantum mechanics.
- 2 Discuss the electron in one dimension box.
- 3 Explain structure and bonding in ferrocene.
- 4 Give the brief account on organo metallic compounds of aluminum and magnesium.
- 5 Draw Pigeon hole diagram for p² configuration and get different energy level.
- 6 Discuss 'Selection Rule' and leporde rule for electronic Transition.
- 7 Write note on: Blast furnace.
- 8 Discuss the Dutch process for manufacturing of white lead.



2