



**NAVVRACHANA  
UNIVERSITY**  
a UGC recognized University

**School:** School of Science  
**Program:** B.Sc. in Chemistry  
**Year:** 2<sup>nd</sup> **Semester:** III  
**Examination:** End Sem Examination  
**Examination year:** December - 2022  
**Course Name:** Inorganic ChemistryII

**Course Code:** CH256

**Date:** 02/12/2022

**Time:** 11:30 am to 1:30 pm

**Total Marks:** 40

**Total Pages:** 1

**Instructions:**

- All Sections are compulsory.
- Please read the questions carefully and answer accordingly.
- Draw a neat and labeled diagram wherever necessary.

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Q.1.	<b>Answer in details. (Any Four, each carry 5 marks)</b> i. Write the limitations of Crystal Field Theory. ii. Write about the Spectrochemical series and explain it with suitable examples for strong field and weak field ligand. iii. Write exceptional property of lithium. iv. Write exceptional property of beryllium v. Write about Lanthanoid Contraction and its consequences. vi. Write in detail about comparison of 3d elements with 4f elements.	20	
Q.2.	<b>Answer in brief. (Any Five, each carry 02 marks)</b> i. Give the hybridization and magnetic properties of $[\text{CoCl}_4]^{2-}$ in detail. ii. Give the hybridization and magnetic properties of $[\text{CoF}_6]^{3-}$ in detail. iii. Write the uses of Helium iv. Write the uses of Fluorine & Bromine . v. Write the about the acid- leaching of Uranium. vi. Write about the paper chromatography for the separation of Lanthanide	10	
Q.3.	<b>Answer in short</b> i. Write the correct formula of, "pentaamminechlorocobalt(III) chloride". ii. Write the formula of triphosphate ion ? iii. Write the formula of phosgene gas. iv. Write the formula of mustard gas. v. Write the electronic configuration of Gadolinium.	05	CO1 CO2 CO3 CO4 CO5 CO6 BT1 BT2 BT3 BT4
Q.4.	<b>Write True or False and Justify</b> i. In case of square planar field ligand the ground state will be $d_z^2$ and $d_{x^2-y^2}$ . ii. Dimanganese decacarbonyl do not contains any metal-metal bond in its structure. iii. $\text{XeF}_4$ contains $sp^3d^3$ and $\text{XeF}_6$ contains $sp^3d^2$ hybridization. iv. We can not make $\text{XeO}_2\text{F}_2$ from $\text{XeF}_6$ and water. v. Cerium does not contains empty d orbital in its electronic configuration.	05	