

FIRST SEMESTER B.Sc. FYUGP EXAMINATION NOVEMBER 2025

(Regular/Improvement/Supplementary)

CHEMISTRY

MAJOR

CHE1CJ101: INORGANIC CHEMISTRY -1

Time: 2 Hrs.

M: Mark

BL : Bloom's Taxonomy Level (1 to 6) CO : Course Outcome

Maximum Marks: 70

Section A: Answer all questions. Each carries 3 marks.

Ceiling: 24 Marks

No.	Question	M	BL	CO
1.	Explain what is meant by the term pseudoscience with examples.	3	2	CO1
2.	What does it mean when it is said that a scientific statement should be falsifiable?	3	2	CO1
3.	Give mathematical expression for average deviation.	3	1	CO1
4.	Name the important components of a research project report.	3	2	CO1
5.	PCl_5 exists while NCl_5 does not. Explain.	3	5	CO2
6.	What are refractory materials?	3	4	CO4
7.	What is annealing of glass?	3	5	CO4
8.	Explain the procedure for disposal of sodium that has spilled in the laboratory.	3	6	CO5
9.	7.48g of Potassium Chloride (KCl) dissolved in 100g of water. Calculate the molality of solution.	3	3	CO5
10.	Potassium Dichromate ($K_2Cr_2O_7$) undergoes the following reduction reaction, Calculate the equivalent mass of Potassium Dichromate, being provided with molar mass of Potassium Dichromate is 294 gmol ⁻¹ . $K_2Cr_2O_7 + 14H^+ + 6e^- \rightarrow 2K^+ + 2Cr^{3+} + 7H_2O$	3	6	CO5

Section B: Answer all questions. Each carries 6 marks.

Ceiling: 36 Marks

No.	Question	M	BL	CO
11.	Distinguish between 'accuracy' and 'precision' relating to analytical results.	6	3	CO1
12.	Write a note on the essential steps involved in chemical research.	6	2	CO1
13.	Draw MO diagram of HF and calculate bond order.	6	3	CO2
14.	Discuss how dipole moment studies are helpful in elucidating molecular structure.	6	5	CO2
15.	Mention the uses of different classes of silicones.	6	2	CO3
16.	How are cyclic and acyclic phosphonitrilic chlorides prepared?	6	4	CO3
17.	Discuss the principle of manufacture of glass.	6	5	CO4
18.	Write a note on complexometric titrations with suitable examples.	6	3	CO5

Section C: Answer any one question. Each carries 10 marks. (1 x 10 = 10 marks)

No.	Question	M	BL	CO
19.	Write down the Born-Haber cycle for MgF ₂ . What are the applications of Born-Haber cycle?	10	3	CO2
20.	Discuss the role and function of redox indicators in dichrometric titration.	10	2	CO5 CO6