UNIVERSITY OF THE PUNJAB

B.S. 4 Years Program / Second Semester – 2019

` Roll No. in Fig.	
`\Roll No. in	Words

Paper:	Chemis	stry-II (Inorg	anic Chemis	try)
Course	Code:	CHEM-103,	CHM-12304	Par
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	e Code: CHEM-103, CHM	/i-12304 Part–I (Compuls	sory) Time: 15 Min. Ma	ırks: 10 \	
Th	Division of r	PAPER ON THIS QUE marks is given in front eted back after expiry o	of each question.		ignature of Supdt.:
Q.1	. Encircle the righ	t answer cutting and	overwriting is not a	llowed. (10x1=10)
1.	Which of the follow	ving shows trigonal ge	ometry		
	a. BF ₃	b. NH ₃	c. PCl ₃	d. IF ₃	
2.		ucture, the pair of d or	bitals involved in d ² sp	3 hybridization	is
	a. d_{x-y}^{2} , d_{z}^{2}	The second secon		d. d _{xy} , d _{yz}	
3.		FLOOD acid-base cor			
	(a) OH ⁻¹ ion donor	(b) electron pair don	or (c) oxide ion	donor (d) a	ll of these
4.	The structure of [Ci	$(H_2O)_4]^{2+}$ is			
	a. Square planar	b. Tetrahedral	c. Distorted octahed	ral d. Octahedi	al
5.	The % age of U ²³⁵ i	n naturally occurring u	ıranium is		
	a. 0.50% b.	-			
	c. 2.0% d.	5.0%			
6.	EAN of Cr (24) is				
	a. 32	b. 36 c. 86	d. 54		
7.	Which of the follow	ing anion has higher p	olarizability		
	(a) F (b) Cl	(c) Br	(d) I*		
8.	According to VSEP	R theory, the geometry	of Isi is		
	a. Trigonal Planar		rahedral		
	c. Pyramidal	d. Lin			
9	9 Which of the following triads is an example of transition elements?				
	a. Ba, Sr, Ca	b. Rb, Cs, Fr		d. F, Cl, Br	
10	The most common or	xidation state of lantha	nides is		
	a. +4	b. +3	c. +6	d. +2	

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UNIVERSITY OF THE PUNJAB

B.S. 4 Years Program / Second Semester – 2019

Paper: Chemistry-II (Inorganic Chemistry)

Course Code: CHEM-103, CHM-12304 Part – II

Roll No.

Time: 2 Hrs. 45 Min. Marks: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2 Attempt all short questions

 $(2 \times 10 = 20)$

- i. Draw molecular orbital energy level diagram for N_2 molecule.
- ii. Define the term electronegativity.
- iii. What is mass defect?
- iv. How does CFT is superior to VBT?
- v. Phenolphthalein is a weak acid. Justify the statement
- vi. What is leveling effect?
- vii. Define EAN rule with example.
- viii. Differentiate between hard and soft base according to HSAB concept.
- ix. Justify that emission of a α -particles by a radioactive isotope shifts its two positions to the left in the periodic table.
- x. Differentiate between inner and outer transition elements

Note: Attempt all questions.

- Q.3 What is diagonal relationship? Elaborate this concept with few examples (10)
- Q.4 What is isomerism? Discuss different types of isomerism in coordination compounds [10]
- Q 5 a) Describe various uses of radioactive isotopes. (05)
 - b) Write down salient features of Valence Shell Electron Pair repulsion theory. (05)