

BIYANI GIRLS COLLAGE

Model test Paper-1

M.sc Previous (Chemistry)

paper - 1

Inorganic chemistry

TIME: 3 HOUR

Max marks-100

Unit- 1

Q 1 Describe the Great Orthogonality theorem and construct the character table for point group C_{2v} .? **(10+10)**

OR

Q2 Name various symmetry element and point group present in the following molecules :-

(a) SOCl

(b) C_6H_6X

(c) BF_3

(d) HOCl

(5+5+5+5)

UNIT-2

Q3 .Short notes on(Any two):-

(a)Bent rule

(b)Energetic of hybridization

(C)Limitations of crystal field theory

(10+10=20)

or

Q4 Write short notes on the following:-

(a) Applications of VSPER theory

(b) Walsh diagram for tri atomic molucules

(10+10=20)

Unit -3

Q5 Write short not on (Any two):-

(a) Spectroscopic ground states

(b) Spin cross-over

(c) Discuss Orgel diagram for metal ions in d^1 and d^9 **(10+10=20)**

or

Q6. (a) Discuss stepwise and overall formation constant.

(b) Write short notes on :-

(1) Chelate effect

(2) spectrophotometric method of determination of stability constant **(10+5+5=20)**

UNIT- 4

Q7. Write short notes on the following(any two):-

(a) Trans effect

(b) Hydrolysis reaction

(c) What are oxidation-reduction reaction **(10+10=20)**

Or

Q8. How can you distinguish b/w SN^1 and SN^2 reaction mechanism in case of substitutions reactions of octahedral complexes? **(20)**

Unit -5

Q9. Short notes on the following:-

(a) Carboranes

(B) Metelloboranes **(10+10=20)**

Or

Q10. What are metal carbonyls compound? Discuss vibrational spectra of metal carbonyls.

(10+10=20)