



BRAINWARE UNIVERSITY

Term End Examination 2023 Programme - B.Tech.(CSE)-2018/B.Tech.(CSE)-2019/B.Tech.(CSE)-2020

> Course Name - Chemistry Course Code - BSC(CSE)202 (Semester II)

LIBRARY **Brainware University** Barasat, Kolkata -700125

Full Marks: 60

Time: 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

- Choose the correct alternative from the following:
- (i) In a reversible cyclic process, the entropy change is
 - a) Positive

b) Zero

c) Negative

- d) Unpredictable
- (ii) Configuration means the relative arrangement of atoms in
 - a) 1D

b) 2D

c) 3D

- d) Both a and b
- (iii) 100g of ice at 0 °C was melted to 100g of water at 0 °C. Given latent heat of fusion of ice at 0 °C is 80 Cal per g. The ΔU of the process is
 - a) 1000 Cal

b) 2000 Cal

c) 4000 Cal

- d) 8000 cal
- (iv) When the molecule is called optically active?
 - a) If it has plane of symmetry
- b) If it exhibits enantiomerism
- c) If it exhibits diasteroisomerism
- d) If it has Centre of symmetry
- (v) What is the effect of the optical angle of rotation (α) if length of polarimeter tube is halved and the concentration of the molecule is doubled.
 - a) α remains same

b) α gets halved

c) a gets four times

- d) a eight times
- (vi) Cis-stilbene has lower wavelength than trans stilbene due to
 - a) Presence of steric repulsion between two
 - benzene rings in cis-stilbene
- b) Presence of steric repulsion between two H atoms in cis-stilbene
- c) Presence of steric repulsion between two benzene rings in trans stilbene
- d) Presence of steric repulsion between two H atoms in trans stilbene

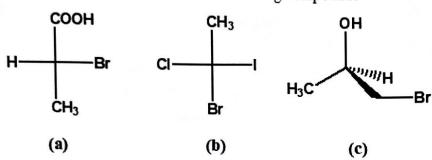
	(vii) The electrode	potential of a saturated calc	omel elec	trode at 25 ⁰ C is	
	a) 24.15 Volt		b)	b) 2.415 Volt	
	c) 0.2415 Volt (viii) The critical constant (V _c) of a Vander Waal's gas is given by				
	a) $V_C=3b$			$V_C=2b$	
	c) $V_c = b/3$			$V_C = b/2$	
	(ix) 1-Propene reacts with HBr in presence of peroxide to produce as major product				
	a) CH ₃ -CH(B ₁	c)-CH ₃	b)	CH ₃ -CH ₂ -CH ₂ -Br	
	c) CH ₂ =CH-C		d)	Both a and b	
		effect of 'd' electrons is:			
	a) much less than s- electrons b) Much			Much more than s-electrons Equal to p-electrons. ared to aniline due to	
ty 125	a) Auxochrome c) Blue Shift		d)	Chromophore	
100125	(xii) Magnetic moment of a transition metal can be calculated from				
	a) Number of paired electronsc) Number of total electrons(xiii) Which statement is true?			Number of valence electrons Number of unpaired electrons	
	 a) The electronegative nature of elements increases along the period b) The electropositive nature of elements increases along the period c) The chemical reactivity of elements increases along the period d) The ionization energy decreases along the period (xiv) For a particle inside a box, the potential is maximum at x = 				
	a) L		b)	2L	
	c) L/2 d) 3L (xv) In which of the following coordination entities the magnitude of Δ_0 (CFSE in octahedral field) will be maximum?				
	a) [Co(H ₂ O) ₆] ³⁺		b)	$[Co(NH_3)_6]^{3+}$	
	c) [Co(CN) ₆] ³ -		d)	[Co(C ₂ O ₄) ₃] ³⁻	
			Group-B		25.15
		(Short Ansv	wer Type (Questions)	3 x 5=15
	2. State and explain th	e Hess's law.			(3)
	 3. Determine the products when formaldehyde and acetaldehyde react with NH₃ separately 4. Define chromophore and auxochrome. Give examples. 5. Differentiate between atomic and ionic radii with examples. 				(3)
					(3)
					(3)
	6. Differentiate between	en reversible and irreversible	process.		(3)

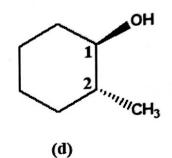
OR

Group-C (Long Answer Type Questions)

5 x 6=30

7. Assign R/S nomenclature for the following compounds





State two main applications of UV-Vis spectroscopy.

9. What is meant by standard electrode potential? Write down the Nernst equation, state its utility.

Bardsat, Kolkata -700125

(5)

- 10. Calculate CFSE for Mn3+ in both strong and weak fields.
- 11. Distinguish between E1 and E2 elimination with examples.

(5)

12. $RT_c/P_cV_c=8/3$. Justify. (where the terms have usual meaning.)

(5)

OR

S-trans 1,3-butadiene absorbs at higher wavelength than S-cis 1,3-butadiene. Justify.

(5)

Page 3 of 3