

INDIAN SCHOOL MUSCAT

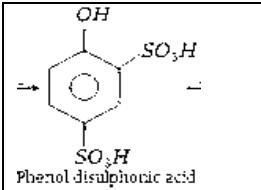
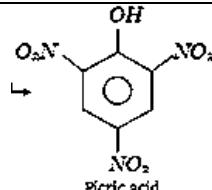
FIRST PRE BOARD EXAMINATION
FEBRUARY 2021

SET A

CLASS XII

Marking Scheme – CHEMISTRY [THEORY]

| Q.NO. | Answers | Marks (with split up) |
|-------|---|--------------------------|
| 1. | i. C ii. B iii. B iv. C OR C | |
| 2. | i) C ii) B OR B iii) A iv) D | |
| 3. | C Or A | |
| 4. | A OR A | |
| 5. | C | |
| 6. | D | |
| 7. | C | |
| 8. | D or D | |
| 9. | A | |
| 10. | B | |
| 11. | A or A | |
| 12. | D OR D | |
| 13. | B | |
| 14. | A | |
| 15. | C | |
| 16. | C | |
| 17. | Example of optically active compound Explanation | 1 1 |
| 18. | a) Resonance b) Undergoes beta elimination to give alkene with more number of alky groups OR i) Aq KOH followed by H NO ₃ , AgNO ₃ and NH ₄ OH ii) Iodobenzene is formed | 1+1 |
| 19. | A-CH ₃ CH ₂ (OMgBr), B-CH ₃ CH ₂ OH, C-CH ₃ CHO, D-CH ₃ CH ₂ Cl | ½ each |

| | | |
|-----|---|--|
| 20. | $K = 2.303/55 \log 0.062/0.044$ $= 6.23 \times 10^{-3} \text{ s}^{-1}$ | 1+1 |
| 21. | $\Pi = 1.5 \times 0.1 / 0.06 = 2.5 \text{ bar}$ OR $W_b = 0.16 \times 180 \times 200 / 32 \times 18 = 10 \text{ g}$ | 1+1 1+1 |
| 22. | a) metal excess defect due to extra cations in interstitial sites b) e in the neighbouring interstitial site helps maintain neutrality | 1+1 |
| 23. | d^2sp^3 hybridisation, diamagnetic nature | 1+1 |
| 24. | a) unpaired e in antibonding orbital b) low bond dissociation enthalpy | 1 1 |
| 25. | i) First order ii) $-k$ iii) s^{-1} OR a) 3 b) Rate increases 3 times c) Molecularity definition | 1 $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ 1 |
| 26. | a) Statement b) CaCl_2 c) Extensive solvation of lyophilic sols | 1 each |
| 27. | a) $\text{C}_2\text{H}_5\text{COCH}_3 < \text{CH}_3\text{COCH}_3 < \text{CH}_3\text{CHO} < \text{HCHO}$ b) CH_2FCOOH , EWG stabilizes the anion formed | 1 2 |
| 28. | $a^3 = 4 \times 207 / 11.35 \times 6.02 \times 10^{23}$ $a = 4.95 \times 10^{-8} \text{ cm}$ $r = 1.749 \times 10^{-8} \text{ cm}$ OR $M^{2+} = x$ $M^{3+} = 98 - x$ $2x + 3(98 - x) - 200 = 0$ $X = 94$ $M^{2+} = 96\%$ $M^{3+} = 4\%$ | 1 1 1 1 1 1 |
| 29. | Mechanism OR <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>Phenol-disulphonic acid</p> </div> <div style="text-align: center;">  <p>Picric acid</p> </div> </div> | 1 each 2 |

| | Y | Z | |
|-----|---|---|---|
| | To increase the yield of picric acid | | 1 |
| 30. | Ostwalds process 2 uses | | 2 1 |
| 31. | a) Small size, high ionic charges and availability of d orbitals b) No unpaired e c) Weak metallic bond due to completely filled d orbitals d) Electronegative nature and formation of multiple bonds e) Lanthanoid contraction OR a) Ce ⁺⁴ , due to stable f ⁰ or Tb ⁺⁴ stable f ⁷ b) i) Sc or Zn ii) Mn iii) Cu, high enthalpy of atomization and low hydration enthalpy | | 1 each 1 ½ 1 1 1 ½ |
| 32. | a) Formation of anilinium ion b) Structure c) A-CH ₃ CH ₂ CONH ₂ , C-CH ₃ CH ₂ OH and reaction of A to B OR i) A-CH ₃ NH ₂ , B=(CH ₃) ₂ NH ii) C=CH ₃ CH ₂ CN, D=CH ₃ CH ₂ CH ₂ NH ₂ iii) E=C ₆ H ₅ SO ₂ NHC ₂ H ₅ | | 1 1 2 1 2 2 1 |
| 33. | a) Anode: Iron , Cathode : Silver b) Fe ²⁺ → Fe ³⁺ + e, Ag ⁺ + e → Ag c) G= -1x96500x0.03 = -2.895kJ/mol 0.03=0.059/1xlogK K=3.2 OR i) The number of ions (responsible for carrying current) decreases ii) λ ⁰ 2NH ₄ OH= λ ⁰ Ba(OH) ₂ + λ ⁰ 2NH ₄ Cl – λ ⁰ BaCl ₂ λ ⁰ =238.3 Scm ² /mol iii) λ _m =1.06x10-2x1000/0.1=106 Scm ² /mol λ ⁰ =126.6 Scm ² /mol α = 106/126.6=0.8372 | | 1 1 1 ½ 1 ½ 1 2 2 |

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FEBRUARY 2021**

SET B

CLASS XII

Marking Scheme – CHEMISTRY [THEORY]

| Q.NO. | Answers | Marks (with split up) |
|-------|--|--|
| 22 | a) Schottky b) Density decreases | 1 1 |
| 25 | c) Order definition OR i) Zero order ii) -k iii) Mol/L/s | 1 1 $\frac{1}{2}$ $\frac{1}{2}$ |
| 26 | c)protection by solvation | 1 |
| 29 | Mechanism of ethene to ethanol | 3 |