

Sub: Chemistry 1st paper (Creative)

Sub Code :

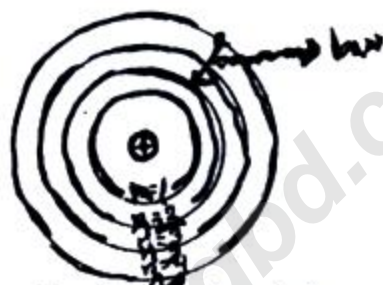
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|---|---|---|
| 1 | 7 | 6 |
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Time: 2 Hrs 10 min

Full marks: 40

[Answer any four questions]

1. Ria uses apon and gloves when working in chemistry laboratory. One day she measured 25 ml solution by a pipette and took it in a 50ml conical flask. Then titrated the solution by a 50ml burette.
- What is latex gloves? 1
 - Write down two differences between macro and micro analysis. 2
 - How Ria will take burette reading? 3
 - How many glass apparatuses are used by Ria? Describe cleaning reagents to clean those apparatus. 4

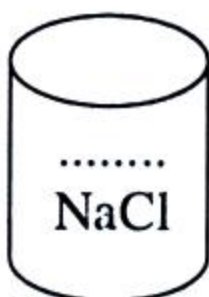


- State Pauli's exclusion principle. 1
- How will you identify fake note by uv-radiation? 2
- Determine four quantum numbers only for the outermost shell of above stem. 3
- What will be the wavelength of light during transmission of electron in above stem? What will be the colour of light? Explain. 4

3.



A



B



C

K_{sp} of AgCl is 2.458×10^{-10} .

- What is spectrum? 1
- Write down two differences between orbit and orbital? 2
- Calculate solubility of AgCl. 3
- Will there be any change in solubility of AgCl in jar 'C'? Explain your opinion with proper calculation. 4

4.

| Element | Outer most Shell electronic configuration |
|---------|---|
| B | $ns^2 np^4$ |
| C | $(n+1)s^2 (n+1)p^4$ |

Here, $n=2$

- What is ionizational potential? 1
- HF is a weak acid but HCl is strong— why? 2
- Explain the bonding nature of hydride of 'B'. 3
- The physical state of hydrides of 'B' and 'C' are not same— Justify the statement. 4

5.

| Atomic no. | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|-------------------------------|-----|-----|-----|------|------|------|------|
| Ionization Potential (Kj/mol) | 520 | 900 | 800 | 1086 | 1403 | 1314 | 1680 |

- What is ionic bond? 1
- What are the differences between sigma bond and pi-bond? 2
- Which one from the above elements has highest value of electronegativity?— Explain. 3
- Explain the periodic change in ionization potential of above elements. 4

6. Element of + Element of \longrightarrow Compound 'P'.

Period-2 Period -1

Group - 15 Group -1

- What is p-block elements? 1
- All transition elements are d-block elements but all d-block elements are not transition elements— Explain. 2
- Explain the bonding between compound 'P' and 'H⁺'. 3
- What will be the hybridization state, size and angle of central atom when the element of 'period-4 group-8' reacts with compound 'P'— Explain. 4

Model Question of HSC Examination 2017 (All Board)





Sub – Chemistry (MCQ)

Sub Code : 176

Time : 35 Minutes

Full Marks : 35

[N.B. Fill the circle of the correct answer with a black ball point pen. Each question bears 1 mark.]

- | | |
|--|--|
| <p>1. What is the lowest volume measured by a burette? (a) 0.01 cm^3 (b) 0.1 cm^3 (c) 0.5 cm^3 (d) 1.0 cm^3</p> <p>2. Which one is used to dry chemical substances? (a) Desiccator (b) Calorimeter (c) Bunsen Burner (d) Fume hood</p> <p>3. Which causes erosion in laboratory? (a) Na_2CO_3 (b) NaCl (c) H_2SO_4 (d) $\text{Na}_2\text{S}_2\text{O}_3$</p> <p>4. How much Na_2CO_3 is needed to prepare 250 ml $0.1 \text{ M Na}_2\text{CO}_3$ solution. (a) 2.65 g (b) 5.3g (c) 5.5g (d) 10.6g</p> <p>5. Which one is not used in micro analysis? (a) TLC (b) Dropping tube (c) NMR (d) Capillary tube</p> <p>6. Which sign is used in uranium preservation? (a)  (b)  (c)  (d) </p> <p>7. Which one can be used in laboratory in stead of H_2S? (a) CH_3COOH (b) $\text{CH}_3\text{-CO-NH}_2$ (c) CH_3CSNH_2 (d) $\text{CH}_3\text{-CSNHCH}_3$</p> <p>8. Which compound can react by itself? (a) CHCl_3 (b) LiAlH_4 (c) Concentrated HNO_3 (d) NH_4NO_3</p> <p>9. Which reagent is poisonous? (a) Benzene (b) Toluene (c) Hexane (d) 1- Butanol</p> <p>10. What is used in spirit lamp as fuel? (a) CH_4 (b) Phenol (c) Liquid NH_3 (d) Alcohol</p> | <p>11. What is the amount of sample in semi micro analysis? (a) 1g (b) 0.0001g (c) 0.001g (d) 0.01g</p> <p>12. Which one is 'Hypo' chloride ion? (a) ClO^- (b) ClO_2^- (c) ClO_3^- (d) ClO_4^-</p> <p>13. For which one Bohr's theory is not applicable? (a) H (b) H^+ (c) He^+ (d) Li^{2+}</p> <p>14. Solubility of AgCl is 0.0015 gL^{-1}. What is solubility product? (a) 1.05×10^{-5} (b) 2×10^{-5} (c) 2.00×10^{-10} (d) 1.10×10^{-10}</p> <p>15. Which ray emits from human body? (a) Near IR (b) Middle IR (c) Far IR (d) Radio wave</p> <p>16. In case of orbit and orbital— i) $4s \rightarrow n=4, l=0$ ii) $5d \rightarrow n=5, l=2$ iii) $6f \rightarrow n=6, l=3$ Which one is correct ? (a) i, ii (b) i, iii (c) ii, and iii (d) i, ii and iii</p> <p>17. In a spectrum wavelength of a series is 102.7699nm. The series is— (a) Lyman (b) Balmer (c) Paschen (d) Fund</p> <p>18. How many unpaired electrons are there in Cr? (a) 3 (b) 4 (c) 5 (d) 6</p> <p>19. Which ion given brown precipitate with Nestler reagent? (a) Cu^{2+} (b) Ca^{2+} (c) NH_4^+ (d) Na^+</p> |
|--|--|

20. Where the electron density is highest?

- (a) 2p (b) 1s
(c) 2s (d) 3s

Read the stem and answer 21-22:



Step 1: White precipitate appears which dissolves in excess reagent.

Step 2: precipitates appears on H₂S addition.

21. What type of precipitate is found in step-1?

- (a) Hydroxide (b) Chloride
(c) Carbonate (d) Sulphide

22. Which ion is present in the solution?

- (a) Al³⁺ (b) Ca²⁺
(c) Mg²⁺ (d) Zn²⁺

23. Which one is possible?

- (a) $n=2, l=2, m=+1, s = -\frac{1}{2}$
(b) $n=2, l=1, m=+1, s = +\frac{1}{2}$
(c) $n=2, l=0, m=+1, s = -\frac{1}{2}$
(d) $n=2, l=0, m=-1, s = +\frac{1}{2}$

24. Which element shown brick red colour in flame test?

- (a) Ca (b) Na
(c) Mg (d) Cu

25. Which one has highest ionization potential?

- (a) C (b) N
(c) O (d) P

26. What is the hybridized state of N⁺H₄?

- (a) sp (b) sp²
(c) sp³ (d) sp²d

27. Which oxide is acidic?

- (a) Na₂O (b) MgO
(c) Al₂O₃ (d) CO₂

28. Which one is correct order of electron affinity?

- (a) F > Cl > Br > I (b) Cl > F > Br > I
(c) I > Br > Cl > F (d) Cl > Br > I > F

29. Which oxidation number of Mn is unstable?

- (a) +7 (b) +5
(c) +3 (d) +2

30. [CO(NH₃)₆]³⁺ ion is—

- i) Octahedral
ii) sp³d² hybridized
iii) Paramagnetic

Which one is correct?

- (a) i, ii (b) ii, iii
(c) i, and iii (d) i, ii and iii

Read the stem and answer 31-32.

| Group \ Period | IA | IVA Or XIV | VIA Or XVI | VIIA Or XVII |
|----------------|----|------------------|------------------|--------------------|
| 2nd | | | P | |
| 3rd | A | D | | Q |

31. DP₂ form—

- i) Polymer
ii) acidic property
iii) lower melting point

Which one is correct?

- (a) i, (b) i, ii
(c) iii (d) i, ii and iii

32. Which statement is not correct about AQ?

- (a) Doesn't form ionic bond
(b) Doesn't conduct electricity
(c) High bp and mp
(d) Dissolves in polar solvent

33. The electronic configuration [Ar] 3d¹⁰4s⁰ is of—
i) Cu⁺ ii) Zn²⁺ iii) Fe²⁺

Which one is correct?

- (a) i and ii (b) iii
(c) ii, and iii (d) i, ii and iii

34. What type of bonding is present between Cu and NH₃ in [Cu(NH₃)₆]²⁺?

- (a) Ionic (b) Covalent
(c) Co-ordination (d) Metallic

35. Which compound is colourful?

- (a) Cu₂Cl₂ (b) CoCl₂
(c) SeCl₃ (d) MgCl₂