

CHEMISTRY - <sup>x</sup>th std

## Quarterly Examination

## Key

Section - 1

- 1) (c)  $\text{Co} + \text{H}_2$
- 2) (b) A (2) B (1) C (4) D (3)
- 3) a) Sum of molar heats of fusion and vaporization
- 4) (a) 4, 6
- 5) (b)  $\text{NH}_3$  (g)
- 6) (b) + 6
- 7) (d) - 9E
- 8) + 3 KJ (c)
- 9) (a)  $\text{iv} < \text{ii} < \text{iii} < \text{i}$
- 10) (b) Both assertion and Reason are correct, but Reason is not the correct explanation of the assertion
- 11) (a) sodium aluminium silicate
- 12) (c) Argon
- 13) (d) Be and Al e.g. b Li e.g. Mg
- 14) (b) negative
- 15) (c) kerosene

Section II

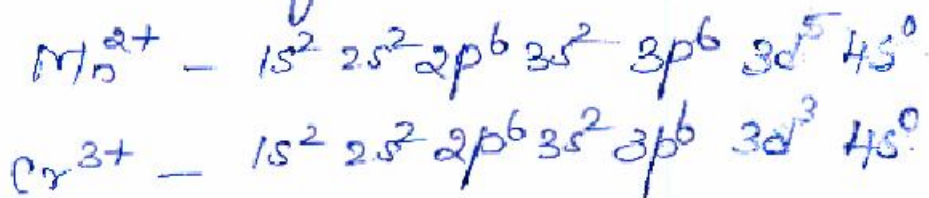
- (16) Correct defn (2 marks)
- (17) Angular nodes 3d orbital = 2  
4f orbital = 3 (1+1)  
Radial nodes 3d orbital = 0  
4f orbital = 0
- (18) It cannot form Insoluble salts. (2)
- (19)  ${}^2\text{He} - 1s^2$   $Z^* = Z - S$   
 $= 2 - 0.30$  (1+1)  
 $= 1.70$
- (20) Correct definition (1+1)
- (21) Chemical name - Sodium bicarbonate (1)  
Use - Cooking & fire extinguisher (1)
- (22) Preparation & equation (1+1)
- (23) Correct explanation (2)

- (24) Correct definition (2)  
→ The vapour pressure of ammonia at room temperature is very high and hence the ammonia will evaporate unless the vapour pressure is decreased. Cooling decreases the vapour pressure so that liquid remains in the same state. Hence the bottle is cooled before opening.

Section III

- (25) Electronegativity  
In groups (1/2)  
In periods (1/2)

(26) Electronic Configuration (1 1/2 + 1 1/2)



(27)  $CH_4 + 2O_2(g) \rightarrow CO_2(g) + 2H_2O(g)$  (3) marks

Combustion of 1 mole (16g)  $CH_4$  produces 2 moles (2 x 18) of water

Combustion of 32g of  $CH_4$  " =  $\frac{36 \times 32}{16} = 72g$  of  $H_2O$

(28) Intermolecular hydrogen bonding - explanation - 1 1/2  
 Intra molecular hydrogen bonding - explanation - 1 1/2

(29) Correct explanation (3) marks.

(30) Correct def'n Boyle + Charle

(1 1/2 + 1 1/2)

(31) Correct def'n Hess law

3 mark

(32) (i)  $CH_2O$  (1 1/2)

(ii)  $C_4H_5N_2O$  (1 1/2)

(33) (i) 102 - Unnilbium (1)  
 (ii) 108 - Unniloctium (1) (3 marks)  
 (iii) 111 - Unununium (1)

Section - IV

(34) (i) limiting reagent correct def'n (2)

(ii) Electronic concept of oxidation / Reduction / correct def'n (1 1/2 + 1 1/2)

(34) (b) de - Broglie equation derivation (5) marks.

(35) (i) Orbital - correct defn (2)

(ii) Correct explanation  
 $Fe^{3+}$  is stable (3)

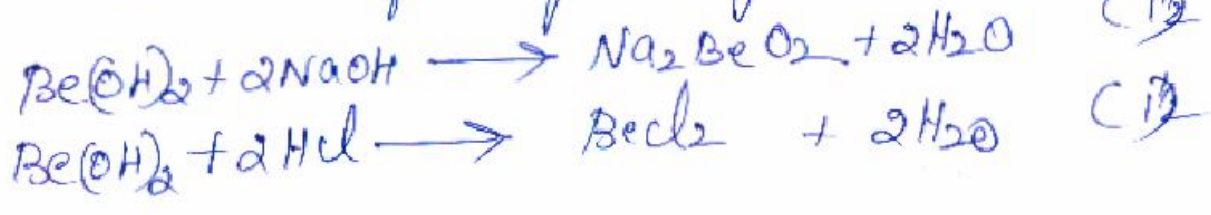
(b) (i) Modern periodic law correct defn (2)

(ii) Successive IE increases  
 $Z^* \uparrow \rightarrow M^{2+} > M^{3+} > M^{4+}$  correct explanation (3)

(36) (i) Be and Nitrogen having fully and half filled electronic configuration. So have zero electron affinity (2)

~~Electronic configuration (Be and N)~~ (1)

(ii) Amphoteric nature of Beryllium hydroxide (1)



(37) (i) Two exchange reactions of Deuterium (2)

(ii) Uses of heavy water (3)

Expression - Relation  $\Delta H = \Delta U + P\Delta V = \Delta U + \Delta n_g RT$  (2)

(b) (i) ~~Derivation of  $\Delta H$  &  $\Delta U$~~  (2)

(ii) correct defn of Lattice energy (3)

38  
a) Similarities between Be and Al

Any five points (5) points -

- (b) (i) Compressibility factor correct defn (2)  
(ii) Joule-Thomson effect correct defn (3)

Handling Teachers

- (1) T. S. S. S.
- (2) S. S. S.
- (3) S. S. S.
- (4) S. S. S.
- (5) N. S. S.
- (6) S. S. S.

M  
18/9/18

6 copies.