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උලාන් මධුරංග- රසායන විද්‍යාව විභාග මධ්‍යස්ථානය

අධ්‍යයන වෛද්‍ය සහතික පත්‍ර (උසස් පෙළ), 2023 අගෝස්තු
General Certificate Of Education (Adv. Level) Examination, August 2023

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02

S/E

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Plank's constant $h = 6.626 \times 10^{-34} \text{ J s}$

Velocity of light $c = 3 \times 10^8 \text{ m s}^{-1}$

01) Write the chemical formulae.

- i. Beryllium chloride
- ii. Aluminum oxide
- iii. Ammonium hydroxide
- iv. Calcium phosphate
- v. Aluminum nitrate
- vi. Potassium permanganate
- vii. Ammonium dichromate
- viii. Potassium bicarbonate
- ix. Aluminum hydrogen sulfate
- x. Magnesium chromate

02) Write down the names for following compounds.

- $\text{K}_2\text{Cr}_2\text{O}_7$
- $(\text{NH}_4)_3\text{PO}_4$
- NaNO_2
- $\text{Ca}(\text{OH})_2$
- BaSO_4
- $\text{Be}(\text{HCO}_3)_2$

03) Find the molar mass of following.

- i. CH_3COOH
- ii. $\text{CO}(\text{NH}_2)_2$
- iii. $(\text{NH}_4)_2\text{CO}_3$
- iv. $\text{Na}_2\text{C}_2\text{O}_4$
- v. NH_4Cl
- vi. $(\text{NH}_4)_3\text{PO}_4$
- vii. $\text{Al}_2(\text{SO}_4)_3$
- viii. $\text{Ba}_3(\text{PO}_4)_2$

04) Find the number of moles in,

- i. 12 g of Mg
- ii. 9 g of H_2O
- iii. 10 g of CaCO_3

05) Find the mass of,

- i. 2 mol of $\text{Co}(\text{NH}_2)_2$
- ii. 4 mol of H_2O
- iii. 5 mol of CO_2

06) Draw the dot cross diagram for,

- i. NH_3
- ii. H_2O
- iii. CH_4

07) Write the electronic configuration of,

- i. Na^+
- ii. Mg^{2+}
- iii. O^{2-}
- iv. N^{3-}

08) Balance these equations.

- i. $\text{Ca} + \text{H}_2\text{O} \longrightarrow \text{Ca(OH)}_2 + \text{H}_2$
- ii. $\text{Al} + \text{O}_2 \longrightarrow \text{Al}_2\text{O}_3$
- iii. $\text{Al} + \text{HCl} \longrightarrow \text{AlCl}_3 + \text{H}_2$
- iv. $\text{Na}_2\text{CO}_3 + \text{BaSO}_4 \longrightarrow \text{BaCO}_3 + \text{Na}_2\text{SO}_4$
- v. $\text{C}_4\text{H}_{10} + \text{O}_2 \longrightarrow \text{CO}_2 + \text{H}_2\text{O}$

09) Find the concentration of following solutions.

- i. 1.6 moles of H_2SO_4 in 0.3 dm^3 of solution.
- ii. 1.0 moles of Na_2CO_3 in 1200 cm^3 of solution.
- iii. 3.6 moles of HNO_3 in 1.2 dm^3 of solution.
- iv. 0.315 g of HNO_3 in 10 cm^3 of solution.
- v. 2.8 g of KOH in 1200 cm^3 of solution.

10) What is the mass of MgCl_2 required to prepare 500 cm^3 of 0.5 mol dm^{-3} MgCl_2 solution.

(**RAM** : C – 12 , H – 1 , O – 16 , N – 14 , S – 32 , Na – 23 , Mg – 24 , Cl – 35.5 ,
P – 31 , Ba – 137)