HALF YEARLY EXAM (I) DEC - 2022.

SBMHSS (2022)

22/12/22

STD: X SCIENCE - I.

PART - I

I CHOOSE THE CORRECT ANSWER: - 7 × 1 = 7

1. (c) mass of the object
2. (d) 8.31 $J\,mol^{-1}\,K^{-1}$
3. (b) Radio Cobalt
4. (a) 22.4 litre
5. (c) $Fe_2O_3 \cdot x H_2O$
6. (c) Light
7. (a) 95.5 %

PART - II

2 - MARKS 7 × 2 = 14

13.) Mass and weight differences
any 2 points — 2 marks

14.) Blue colour (shorter wavelength) is scattered to a greater extent. — 2 marks

15.) $P \propto \frac{1}{V}$ at Constant Temperature - 2 marks

16.) HCl, CO (any two examples) - 2 marks

17.) (a) False. solution which Contain two components → 1 mark

(b) false. In a solution, the Component which is present in larger amount. → 1 mark

18) Match

1) Blue Vitriol — $CuSO_4 \cdot 5H_2O$
2) Gypsum — $CaSO_4 \cdot 2H_2O$
3) Deliquescence — NaOH
4) Hygroscopic — CaO

22) 1.0×10^{-4} HNO_3

$pH = -\log_{10}[H^+]$ — 1 mark

$= -\log[1 \times 10^{-4}]$

$= -[\log 1 + \log 10^{-4}]$ — ½ mark

$pH = +4$ — ½ mark

III

7×4 = 28

23) a) Due to the lengthening of eye ball.

* Nearby objects can be seen clearly but distant objects cannot be seen clearly.
* focal length of eye lens is reduced — 2 marks

(b) The earth wire sends the current from the body of the appliance to the Earth. — 2 marks

Earth wire serves as a protective conductor which saves us from electric shocks

24) when sound is reflected from a concave surface, the reflected waves are converged and focused at a point. so the intensity of reflected waves is concentrated at a point. — 4 marks

In convex surface, the reflected waves are diverged out and intensity is decreased.

25) (a) dolphins, bats, dogs. mosquito ($4 \times \frac{1}{2}$)

(b) Soddy and fajan's

(i) (A) by 4 units
(Z) by 2 units → 2 marks

(ii) (A) is same
(Z) is more by 1 unit.

26) hydrated ferric oxide ($Fe_2O_3 \times H_2O$) — 2 marks
reddish brown hydrated ferric oxide

$4Fe + 3O_2 + xH_2O \rightarrow 2Fe_2O_3 \times H_2O$ (rust) — 2 marks

27) (1) CO_2/H_2O (2) $NaCl/H_2O$ (3) Cu/Au (Alloy)
(4) $He-O_2$ gas. — (4 marks)

28) Reversible and irreversible reactions.
(4 points) — (4 marks)

(32) $\frac{1}{f} = \frac{1}{v} - \frac{1}{u}$ — 1

$\frac{1}{v} = \frac{1}{f} + \frac{1}{u}$ — ½

$= \frac{1}{10} + \frac{1}{-20}$ Real and inverted — ½

$\frac{1}{v} = \frac{2 - 1}{20} = \frac{1}{20}$ — 1

$\boxed{v = 20}$ — 1

PART-IV

33)(a) * based on Conservation of linear momentum as well as Newton's III law of motion. → 7×1 = 7 marks

* Rockets are filled with a fuel.

* hot gas is ejected with a high speed from the nozzle of the rocket.

* An equal and opposite reaction force is produced in the Combustion chamber, which makes the rocket Project forward

* mass of rocket gradually decreases, no net external force acting on it.

* It reaches a velocity, to just escape from the gravitational pull of the Earth. This is called Escape Velocity.

* Mass of the rocket gradually decreases.

(33)(b)	α rays	β-rays	γ-rays
What are they	$_2He^4$	$_{-1}e^0$	electromagnetic waves
Charge	positive	Negative	Neutral
Ionising power	100 times greater	low	Very less
Penetrating power	Low	greater than α,	Very high
Effect of electric and magnetic field	Deflected by both fields	Deflected	Not deflected
Speed	1/10 to 1/20 times	9/10 times	travel with speed of light

34(a) (i) An atom is no longer indivisible

(ii) Atoms of same element may have different atomic mass.

(iii) Atoms of different elements may have same atomic masses.

(iv) Artificial transmutation

(v) Atoms may not always combine in a simple whole number ratio

(vi) $E=mc^2$

(vii) Atom takes part in chemical reaction.

—x—

(b) Ethanol manufacture from Sugarcane
Introduction - 1 mark

(i) Dilution of molasses — 1 mark

(ii) Addition of Nitrogen source - 1 mark

(iii) Addition of yeast - 1 mark

(iv) Distillation of wash - 1 mark

2 Equations — (2 marks)

— X —

HANDLING TEACHERS

1. Co-ordinator

2. [illegible]

3. M. K [illegible]

4. E.T. [illegible]