

GOVT BOYS HIGHER SECONDARY SCHOOL., KULITHALAI., KARUR
HALF YEARLY EXAMINATION- 2023

10-SCIENCE ANSWER KEY

-PREPARED BY

PARTHASARATHI.S MST.,MSc.,MPhil.,MEd ., BT ASST

PART-I(12x 1= 12)

- 1.c)Both a &b
- 2.c)Electrical energy
- 3.b)Radio Cobalt
- 4.c)Carbon dioxide
- 5.b)11 g
- 6.b)Combustion of ethanol
- 7.c)Atrium → ventricle → arteries → veins
- 8.c)Arachnoid membrane
- 9.b)Mitochondrial matrix
- 10.b)Sertoli cells
- 11.c)Cow pea
- 12.c) 1-iii),2-(i), 3-(iv),4-(ii)

PART-II(7 x 2 = 14)

13.

S.NO	CONVEX LENS	CONCAVE LENS
1	Thicker in the middle than edges	Thinner in the middle than edges
2	Converging lens	Diverging lens
3	Mostly real images	Virtual images
4	Treat hypermeteropia	Treat myopia

Each point carries $\frac{1}{2}$ marks $4 \times \frac{1}{2} = 2$

14. when the temperature of a gas is kept constant, the volume of a fixed mass of gas is inversely proportional to its pressure(1)

Pa $1/V(1)$

15. When iron is exposed to moist air, it forms a layer of brown hydrated ferric oxide on its surface, This compound is rust(1)



16.(i) increases(1)

(ii) decomposition(1)

17.A) Capsule (1/2) B) Cortex(1/2) C) Medulla(1/2) d) Blood vessels(1/2)

18. The short segments of DNA are called Okazaki fragments(2)

19. The age of fossils is determined by radioactive elements like C, Pb, K, U present on it(1/2)

Methods- 1) paleobotany 2) anthropology (1/2)

Consumption of C stops after death of animal and plants(1/2)

Radio carbon dating used for calculating the age by decaying C^{14} (1/2)

20. Column A

Column B $4 \times \frac{1}{2} = 2$

1. Soil erosion - (c) Removal of vegetation

2. Bio-gas - (d) CO_2

3. Natural gas - (b) Non-renewable energy

4) Green house gas - (a) Acid rain

21. The script editor has three parts(1/2)

1) script area- Where you build scripts(1/2)

2) Where you choose the category of blocks(1/2)

3) Block palette- where you choose the block to use(1/2)

22. The speed of the sound $2d/t = 1450 \text{ m/s}$ (1/2M)

$$2d/1 = 1450 \text{ m/s}(1/2M)$$

$$2d = 1450 \text{ m/s}$$

$$\text{There fore } d = 1450/2 = 725 \text{ m}$$

$$\text{Ans} = 750 \text{ m}(1M)$$

PART-III (7 x 4 = 28)

23. 1) law of conservation of linear momentum and Newton's III law
 2. solid or liquid fuel in the propellant tank
 3. Fuel burnt hot gas ejected create momentum
 4. To balance the momentum- equal and opposite reaction
 5. The mass of rocket gradually decreased with altitude – gradual increase the velocity
 6. at one stage, escape from the gravitational pull-escape velocity
 (any four points) (each point carries 1 M)
24. 1) watch repairs and jewelers (1M)
 2) read small letters clearly (1M)
 3) observe parts of flower and insects etc (1M)
 4) finger print in forensic science (1M)
25. 1) Not harmful to the environment
 2) wide range of colours
 3) cost and energy efficient
 4) No toxic materials are required
 5. No filament, No loss of energy, cooler than incandescent bulb
 6. Low power requirement
 (any four points) (each point carries 1 M)
26. 1) PH in our digestive system (1M)
 2) PH in tooth decay (1M)
 3) PH of soil (1M)
 4) PH of rain water (1M)
27. (each point carries 1 M)

S.No	HYGROSCOPIC	DELIQUESCENT
1	Absorb moisture and do not dissolve	Absorb moisture and dissolve
2	Do not change its physical state	Change its physical state
3	May be amorphous solids or liquids	Crystalline solids
4	Ex: H_2SO_4 , P_2O_5 , CaO , SiO_2	Ex.: $NaOH$, KOH , $FeCl_3$

28. (each point carries 1 M)

S.No	Aerobic	Anaerobic
1	Cellular respiration takes place with oxygen	respiration takes place without oxygen
2	Food completely oxidized and give CO_2 , H_2O and energy	In bacteria glucose convert to ethanol or lactate
3	More energy is release	Less energy is released
4	$\text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 \longrightarrow \text{CO}_2 + \text{H}_2\text{O} + \text{ATP}$	$\text{C}_6\text{H}_{12}\text{O}_6 \longrightarrow 2\text{CO}_2 + 2\text{C}_2\text{H}_5\text{OH} + \text{ATP}$

29. 1) Looping and crawling movement(1M)-explanation(1M)

2) Swimming movement(1M)-explanation(1M)

30. 1) Screening blood from blood bank for HIV

2) Ensuring the disposable syringes

3) Advocating safe sex- using condoms

4) Create awareness and educating people for AIDS

5) Persons with HIV/AIDS should not be isolated

(any four points) (each point carries 1 M)

31. 1) using genetic engineering we can prepare proteins, poly peptides in the form of pharmaceutical products

2) Insulin for treat diabetes

3) GH for treating growth deficiencies

4) Blood clotting factors for Haemophilia

5) tissue plasminogen activator for Heart attack and blood clotting

6) Development of vaccines

(any four points) (each point carries 1 M)

32. Mass=no. of moles x molecular weight

i) 2 moles of hydrogen: $2 \times 2 = 4\text{g}$ (mol. weight=2)(1M)

ii) 3 moles of chlorine molecule: $3 \times 71 = 213\text{g}$ (mol wt=71)(1M)

iii) 5 moles of sulphur molecule: $5 \times 256 = 1280\text{g}$ (mol wt=256)(1M)

iv) 4 moles of phosphorus molecule: $4 \times 124 = 496\text{g}$ (mol wt=124)(1M)

PART-IV(3 X 7 = 21)

33a) 1) ideal gas equation

$$PV=C \text{ ----- (1) } \quad V/T=C\text{-----(2)} \quad V/N=C\text{-----(3)}$$

Combine (1), (2) and (3) we get

$$PV/nT=C \text{ -----(4)} \quad (1M)$$

$$n=\mu N_A \text{ -----(5)} \quad (1M)$$

Subs(5) in (4) we get

$$PV/\mu N_A T=C$$

$$C=\text{Boltzmann constant}=K_B=1.38 \times 10^{-23} \text{ J K}^{-1} \quad (1M)$$

$$PV/\mu N_A T=K_B \text{ -----(6)}$$

$$\mu N_A K_B = R = \text{Universal gas constant} = 8.321 \text{ J mol}^{-1} \text{ K}^{-1} \quad (1M)$$

Subs the value in (6) we get

$$PV=RT \quad (1M)$$

li) The rotating or turning effect of force about a fixed point or fixed axis is called

moment of the force, (1M)

torque $T = F \times d$ (1M) (OR)

b) i)

Properties	α -rays	β -rays	Γ -rays
What are they?	${}_2\text{He}^4$	${}_{-1}\text{e}^0$	Electromagnetic waves with photons
Charge	$=+2e$	$=-e$	Neutral charge
Ionising power	$100\alpha > \beta$ $10000\alpha > \gamma$	Low	Very less
Penetrating power	Low	Greater than α rays	Very high
Effect of electric and magnetic field	Deflected on both fields	Deflected on both fields but opposite to α	Not deflected
Speed	1/10 to 1/20 times of light	9/10 times of light	Travel with the speed of light

(any five points) (each point carries 1 M)

ii) No dopplers effect

- 1) When S and L are rest
- 2) Distance of S and L is always constant
- 3) S and L moving perpendicular
- 4) S center L moving in a circle, vice versa (4 x 1/2 = 2)

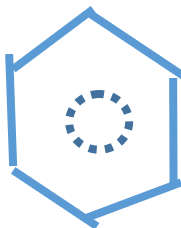
34) A) i) Modern atomic theory

- 1) An atom is no longer indivisible
- 2) Atoms of same element have different mass-isotopes
- 3) Atoms of different elements has same mass-isobars
- 4) Atoms of one element can be transmuted to another element
- 5) Atoms may not combine simple ratio
- 6) Atoms takes part of chemical reaction
- 7) Mass is converted into energy

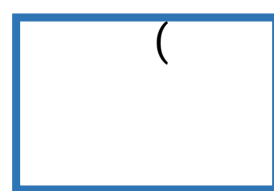
(any five points) (each point carries 1 M)

ii) 1) propane- open chain compound- $\text{CH}_3\text{-CH}_2\text{-CH}_3$

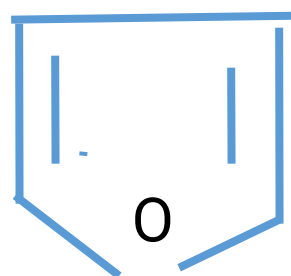
2) Benzene- Carbocyclic compound- C_6H_6 -



3) Cyclo butane- Alicyclic compound- C_4H_8



4) Furan- Hetero cyclic compound - $\text{C}_4\text{H}_4\text{O}$



(4 X 1/2 = 2)

(OR)

B) I)

S.No	Reversible reaction	Irreversible reaction
1	It can be reversed under suitable conditions	It cannot be reversed
2	Both forward and Backward reactions take place simultaneously	Only forward reaction
3	It attains equilibrium	Equilibrium is not attained
4	Slow	fast
5	No complete product	Complete product

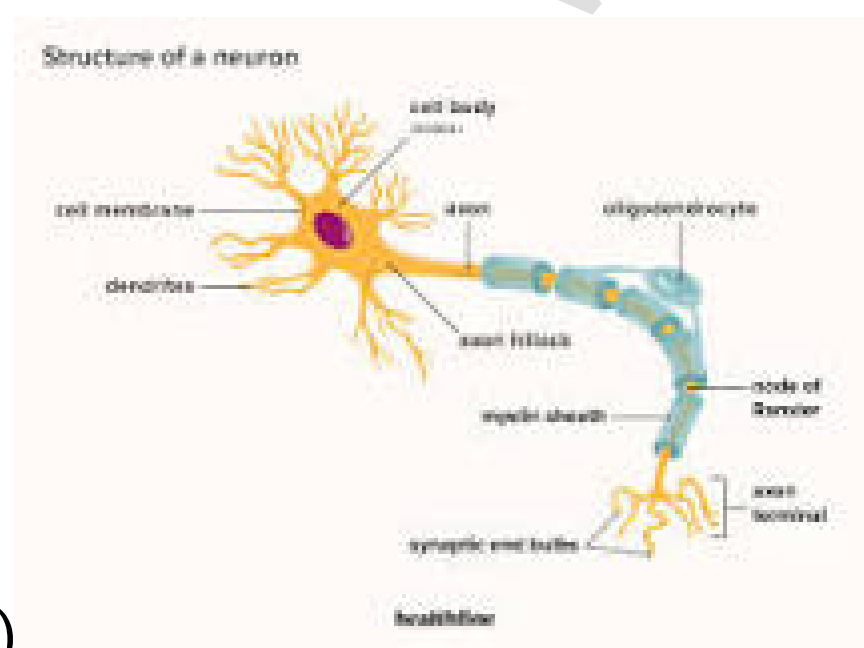
(any five points) (each point carries 1 M)

li) Methods of preventing corrosion

- 1) Alloying
- 2) Galvanizing
- 3) Electroplating
- 4) Anodising
- 5) Cathodic protection

(any four points) (each point carries 1/2 M)

35. A) i) Structure of neuron



Diagram(2M)

Theory (3M)

- ⊠ Cyton
- ⊠ Dendrites

- ⊠ Axon
- ⊠ Synapse

ii)1) regulate blood circulation(1M)

2) Prevent back flow of blood(1M)

(OR)

b)(i)Angiospermic ovule



Diagram(2M)

Theory: (6 x 1/2=3M)

- ⊠ Nucellus
- ⊠ Micropyle
- ⊠ Funiculus
- ⊠ Micropyle
- ⊠ Polar nuclei
- ⊠ Synergids

li)Importance of rain water harvesting

- 1)Overcome rapid depletion of ground water
- 2) Meet the demand of water
- 3)Reduces flood and soil erosion
- 4)Water is not contaminated

(4 x 1/2 =2M)

ALL THE BEST



www.Padasalai.Net