Little Hearts School, Gangavathi, District: Koppal | 2020

SSLC Answer Key, Exam conducted on 29-06-2020 [SCIENCE] Code: 83:E

Answer Paper Prepared By: **Nalini Madam & Nirosha Madam**

I. 1. a (Absorbs more heat)
2. c (Basic property increases & no. of OH^- ions increases
3. b (primary shoot, primary root)
4. d (at the centre of curvature and inverted)
5. b (hydroelectric power plant)
6. a (C_2H_6)
7. c (is secreted by parathyroid gland)
8. d (C_nH_{2n+2})

II. 9. When iron ring is dipped in $CuSO_4$ solution, Fe can displace Cu, & Cu deposits on Fe ring in the form of coat.
It is a displacement reaction.

10. Volt (V).

11. Aquatic organisms take dissolved oxygen from water, and the amount of dissolved oxygen in water is low compared to the oxygen present in air.

12. K_2SO_4
Since K & Na come in same group, they have same properties (have same valancy).

13. Because, slurry can be used in the fields as manure which is rich in nitrogen, phosphorous and increases the fertility of the soil.

14. Black (Black BB × Brown bb
↓
Bb (Black))

15. (i) H_2 is oxidised
(ii) CuO is reduced.

16. → Induced electric current produced (Electromagnetic induction)
Motion of a magnet with respect to the coil produces an induced potential difference, which sets up an induced electric current in the circuit.

III. 17. Lime powder nothing but CaO which is basic. This is added if the soil is more acidic in nature, on adding CaO, we can bring down the acidic nature of soil.

18. * Frogs & lizards are cold blood animals
* They have a 3 chambered heart so there is mixing of oxygenated and deoxygenated blood in them, so they are not able to maintain a constant

temperature and depend on the temperature of environment

19. Refer text book, Page NO – 22.
or
Page NO – 19

20. Given, length (l) = 1m
Resistivity (ρ) = $1.84 \times 10^{-6}\ \Omega m$
diameter (d) = 3×10^{-4} m.
Resistance (R) = ?

Formula, $R = \rho \frac{l}{a}$

$$R = \frac{\rho l}{(\pi d^2/4)} \quad \left(\because a = \frac{\pi d^2}{4}\right)$$

Substitute the values,

$$R = \frac{1.84 \times 10^{-6}\ \Omega m \times 1\ m}{\left(\frac{3.14 \times (3 \times 10^{-4} m)^2}{4}\right)}$$

$$= \frac{1.84 \times 4 \times 10^{-6}}{28.26 \times 10^{-8}\ 10^{-2}}$$

$$= \frac{1.84 \times 4 \times 10^{2}}{28.26}$$

$$= \frac{0.2604}{7.36 \times 10^{2}}$$
$$\overline{28.26}$$

$$= 0.2604 \times 10^{2}$$

$$\boxed{R = 26.04\ \Omega}$$

OR

Given, $R_1 = 2\Omega$, $R_2 = 4\Omega$, $R_3 = 4\Omega$, $R_4 = ?$

$R_5 = 5\Omega$, $V = 6V$,

Using Formula,

$$\frac{1}{R_4} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$$

$$\frac{1}{R_4} = \frac{1}{2} + \frac{1}{4} + \frac{1}{4}$$

$$= \frac{2+1+1}{4}$$

$$= \frac{4}{4}$$

$$\frac{1}{R_4} = 1$$

$$R_4 = 1\Omega$$

Now, $\frac{1}{R_p} = \frac{1}{R_4} + \frac{1}{R_5}$

$$\frac{1}{R_p} = \frac{1}{1} + \frac{1}{5}$$

$$= \frac{5+1}{5} = \frac{6}{5}$$

$$\frac{1}{R_p} = \frac{6}{5}$$

$$\Rightarrow R_p = 0.83$$

$$\therefore R_p = 0.83\Omega$$

21. * It is because the flow of energy in food chain is unidirectional because the sun is the only source of energy for all ecosystems on earth.
* So, the energy utilised by the autotrophs does not go back to the sun.

22. (i) Gold is ductile
(ii) Ni has sonorous property.

23. Refer text book, page No - 45 (part 2)

24. Refer text book, page No - 130. (part 1)

25. (a) $H = I^2Rt$ is known as Joul's law of heating effect. The law implies that heat produced in a resistor is
* directly proportional to square of the current
* directly " " - resistance
* " " " time for which the current flows.

Working of an electric filament bulb (6)

* The electric heating is also used to produce light, as in an electric bulb.
* Here, the filament must retain as much of heat generated as possible so that it gets very hot and emits light.
* Tungsten metal is used for making the filaments of electric bulb because it has a very high melting point.
* Thermally isolated as much as possible
* The bulbs are filled with inactive nitrogen and argon gases to prolong the life of filament.

(or)

(b) Ohm's law states that the potential difference V, across the ends of a given metallic wire in an electric circuit is directly proportional to the current flowing through it, provided its temperature remains the same.

* Ammeter should be connected in Series with the circuit and voltmeter has to be connected in parallel with the circuit.

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* Ammeter and voltmeter measures the electric current and potential difference in the circuit.

26. $3BaCl_2 + Al_2(SO_4)_3 \longrightarrow 3BaSO_4\downarrow + 2AlCl_3$
(white ppt)

This reaction is a double Displacement reaction or Precipitation reaction.

* It is because, the ions of reactants got exchanged (or) the formation of precipitate is observed.

27. Human male reproductive system contains the following parts (structures)

(a) Testes :- * It produces male sex cells.
* produces male harmone called testesterone.

(b) Scrotum :- * protects testes
* maintains temperature

(c) Vas deferens :- * Tube that helps in passing sperms.

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(d) Penis :- Discharges sperms

(e) Urethra :- Common passage for both sperms and urine.

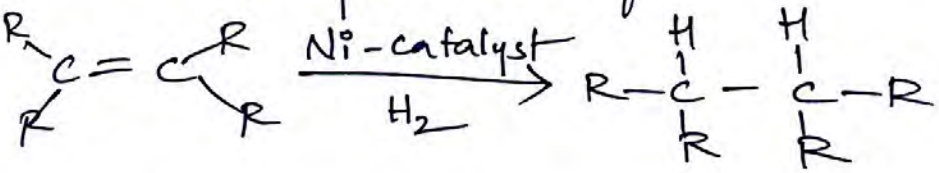
(OR)

Placenta :- A structure formed by specialised tissues of foetus and uterine wall of mother.

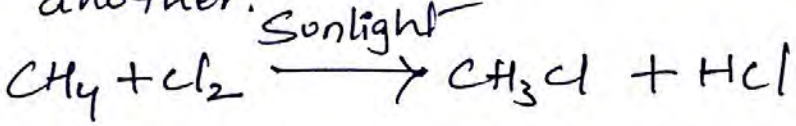
Function :- * Nutrients come into foetus from mother's blood through placenta
* Waste go out from foetus to mothers blood through placenta.

(28) * Addition reaction

Unsaturated hydrocarbons undergo addition reactions in presence of catalyst.



* Substitution reaction :- A reactions where one atom is substituted with another.

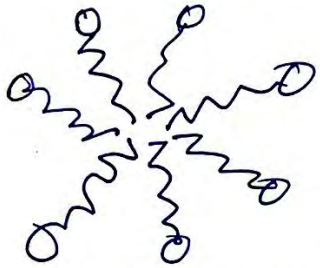


$CH_4 + Cl_2 \xrightarrow{\text{Sunlight}} CH_3Cl + HCl$

* C_2H_6 doesnot undergo addition reaction beacuse it is a saturated hydrocarbon.

OR

* Soap molecules at high concentration forms micelle.
* The ionic end of soap interacts with water while the carbon chain interacts with oil(dirt), thus forms micelle.



micelle.

* The soap micelle, helps in pulling out the dirt in water.
* More amount of soap is required to clean the cloths in hard water is because of scum formation.

$$\underset{\text{soap}}{C_{17}H_{35}COONa} + Ca^{+2} \longrightarrow \underset{\text{Scum.}}{(C_{17}H_{35}COO)_2Ca} + Na^{+}$$

This scum doesnot allow soap to clean the clothes.

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29. * The main purpose of check dams is to recharge ground water beneath.
* Water in these does not evaporate
* provides moisture for vegetation over wide area
* The ground water is also protected from contamination by human and animal waste.

(30) Given; Focal length, $F = -12\,cm$ (10)
Object distance, $u = -18\,cm$
image distance, $v = ?$
magnification, $m = ?$

Using mirror,

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

$$\frac{1}{v} = \frac{1}{f} - \frac{1}{u}$$

Now substitute the values

ie, $\frac{1}{v} = \frac{1}{(-12)} - \frac{1}{(-18)}$

$$= \frac{3}{-12} + \frac{2}{18}$$

$$\frac{1}{v} = \frac{5}{-36}$$

$$\boxed{v = -7.2\,cm}$$

Magnification, $m = \frac{-v}{u}$

$$m = \frac{-(-7.2)}{-18}$$

$$\boxed{m = -0.4}$$

Since, m is less than 1 ($m < 1$)
image is diminished.

(OR)

Given, Power (P) = $-0.5\,D$, focal length (f) = ?

$$f = \frac{1}{P}$$

$$f = \frac{1}{-0.5\,D}$$

$$f = -10/5\,cm$$

$$\boxed{f = -2\,cm}$$

Since f is negative, lense is concave (diverging lens)
Myopia can be corrected using proper concave lens.

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(31). Refer text book, page no – 72.
(part – 1)

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(32). refer text book
Part 2, page no – 90.
fig (d)

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(33). * Atomic number 8 → Oxygen (O)

Dot structure → 

Electronic Configuration → $1s^2, 2s^2 2p^4$ or (2, 6)

Atomic number 16 → Sulphur (S)
Electronic Configuration → $1s^2, 2s^2 2p^6, 3s^2 3p^4$ or (2, 8, 6)

* We can keep both elements in a same group, because they have same number of valance electrons.
* Oxygen is more electronegative than sulphur because electronegativity decreases from top to bottom in a group.

VI. 34. The given structure is about -

Reflex Arc (spinal cord)

⇒ Reflex Arc helps for Reflex Actions.

A → Spinal nerves

Function :- Carries messages from sense organs to spinal cord.

B ⟹ Relay neutron connects to motor neuron

Function :- Sends messages from spinal cord to muscles.

⟹ Reflex arcs have evolved in animals because the thinking process of the brain is not fast enough. So reflux arcs have evolved as efficient ways of functioning in the absence of true thought processes.

(35) ⟹

Calcination	Roasting.
(i) Conversion of carbonate ore into oxide form.	(i) Conversion of sulphide form into oxide form.
(ii) Carbonate ore is heated in absence of air / limited air	(ii) Sulphide ore strongly heated in presence of excess air.

⟹ $ZnS + O_2 \longrightarrow ZnO + SO_2$ (Roasting)

$ZnCO_3 \xrightarrow{\Delta} ZnO + CO_2$ (Calcination)

⟹ ZnO, so formed is reduced to metal with the help of reducing agent like Carbon.

$ZnO + C \longrightarrow Zn + CO$.

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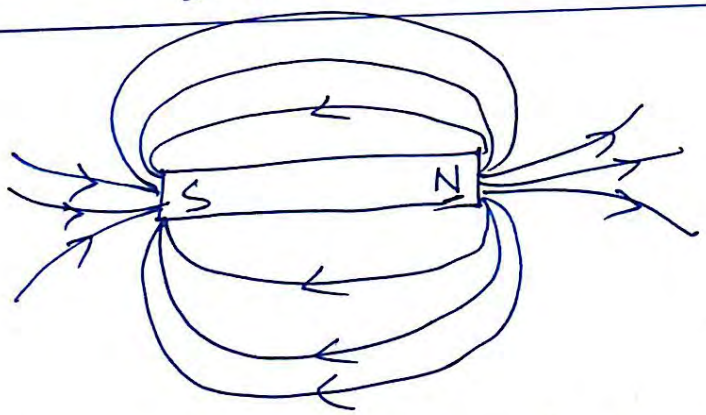
(36).



A compass needle is a small bar magnetic. When it is brought near a bar magnet, compass needle gets deflected due to attractive (or) repulsive interactions between its magnetic field lines and

the magnetic field or the bar magnetic.

The properties of magnetic field lines:

* Magnetic field lines emerge from noth pole and merge at south pole.
* Two magnetic field lines never intaract each other.
* Outside the magnet, the magnetic field lines are directed from NORTH pole of magnet towards SOUTH pole,
* The magnetic field lines at any one point gives the direction of magnetic field at that point.

(37). RrYy × RrYy

↓

F2	RY	Ry	rY	ry
RY	RRYY	RRYy	RrYY	RrYy
Ry	RRYy	RRyy	RrYy	Rryy
rY	RrYY	RrYy	rrYY	rrYy
ry	RrYy	Rryy	rrYy	rryy

Round yellow ⟶ 9
round, green ⟶ 3
wrinkled, yellow ⟶ 3
wrinkled, green ⟶ 1

(OR)

Evolution:- Evolution is the sequence of gradual changes which takes place in the primitive organisms, over million of years, in which new species are produced.

Evidences.

① Homologous Organs:- (Morphological and anatomical evidences)
These are the organs having same structure but different functions.
This is the evidence for evolution by telling

ns that they are derived from the same ancestor.

(2) Analogous Organs :- The organs having same function but different structure. This provide evidence of mechanism for evolution.

(3) Fossils :- (Paleontological evidences). The remains of dead organisms of the past.

VI. (38) For fig → Refer text book (part-2) page No — 103

⟹ * Newton was the first to use a glass prism to obtain the spectrum of sunlight.

* He tried to split the colours of the spectrum of white light further by using another similar prism.

* However, he could not get any more colours, he then placed a second identical prism in an inverted position w.r.t the first prism as shown in the above fig.

* This allowed all the colours of the spectrum to pass through the second prism.

* He found a beam of white light emerging from the other side of the second prism.
* This observation gave Newton the idea that the sunlight is made up of seven colours.

⟹ The sun appears red during sunrise because, during morning, sun rays travel large distances in the Earth's atmosphere, and in this process, the shorter wavelengths scatter away and only large wavelength (red light) reach us.

⟹ At noon, the sun appears white because, the sun is overhead and light rays travel comparatively, Smaller distance and only little of blue/violet light scatter, so sun appears white.

THANK YOU

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