21/06/2025

Biology

Life Process

I Question and answer

1. Define life Process

Ans Life Process are the essential maintance job or activities performed by leaving organisms to survive this Processes includes respiration Growth digestions excreation movement reproduction etc

2. what Criteria do we use to decide weather Something is alive?

Ans The ~~Indis~~ main criteria used to decide weather Something is alive is the events of life Process example: Growth, digestion, respiration, movement, reproduction etc.

3. What is nutrition?

Ans The transfer of Sources of energy in the form of food from Outside a body of Organism to inside is called nutrition.
ex → eating vegetables and fruits outsides Sources to inside a body.

4. Write two major types of nutrition

Ans Two enjoy types of nutrition.

Nutrition → Autotrophic
Nutrition → Hetrophic

5. what is autotrophic nutrition

Ans Autotrophic nutrition is type of nutrition where organism called autotrophic Prepare there own food from is organic Substance
ex → water, Co_2, light, energy (or) Sunlight

6. What is hetrotrophic nutrition.

Ans Hetrotrophic nutrition is type of nutrition where organism cannot prepare there own food but depends on other organism for food and to Survive.

EX→ Human beings depends on plants and animal for their nutrition.

7. what are the difference between Auto -trophic & -Hetrotrophic nutrition.

Autotrophic nutrition	Heterophic nutrition.
* Food is Prepared by their own	* Can not Prepare their own food depends on their food.
* Uses inorganic compo -nent like water, CO_2 Sunlight	* Food is taken directly from autotrophic
* Presense of Chloro -phyll is necessary for taking nutrition	* No, Pigment is required in this type of nutrition
* Almost all Plants and some bacteria ex-> Algae Can have this type of nutrition	* All animals Es fungi have this type of nutrients.

8. write a short note on autotrophes and Heterotrophs.

Ans Autotrophis - the Organism which prepares there own food example All Species of Plants.

Hetrotrophis - the organisim which cannot Prepare there own food and depend is on other organism for food.

Example-> Animals Human beings

9. Classify organism depending on their diet (food)

Ans:

Examples

1) Herbivores - cow
2) Carnivores - Lion
3) Omnivores - Dog
4) Decompose - fungi

10) Explain the Processes of Photosynthesis.

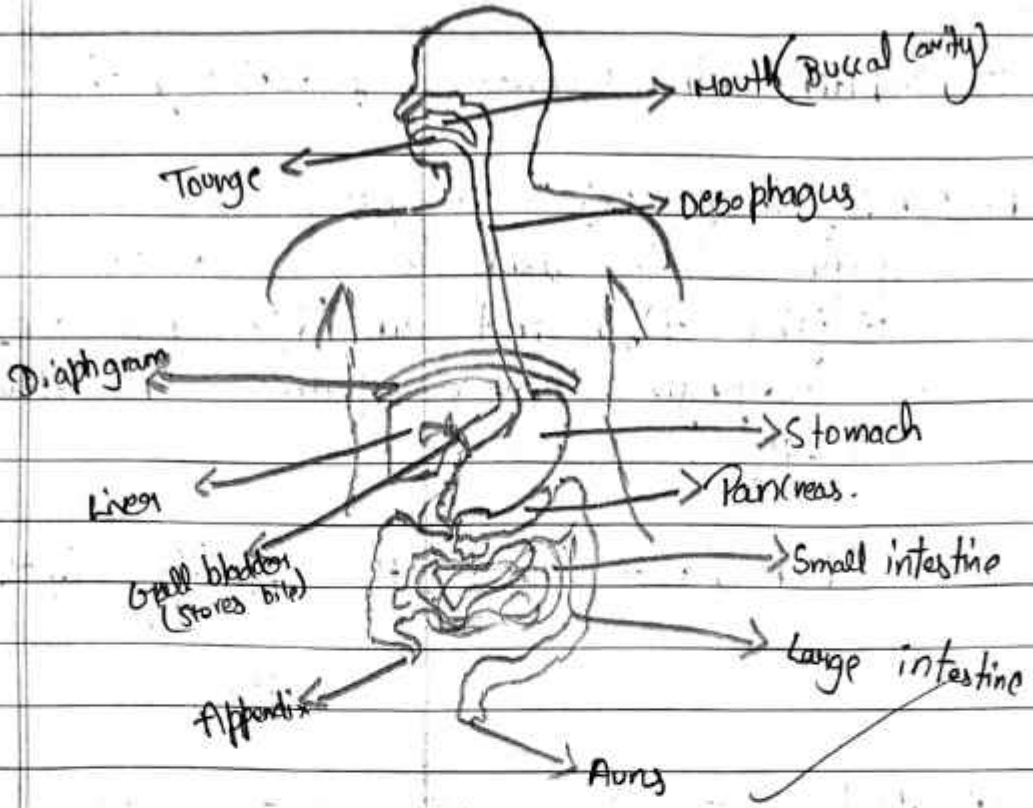
Ans Photosynthesis is a process by which Plants Prepares their own food by taking in CO_2 utilizing H_2O and in Presences of Sunlight Eg Chlorophyll Prepares glucose and releases oxygen and H_2O.

Formula → $6CO_2 + 12H_2O \xrightarrow[\text{chlorophyll}]{\text{Sunlight}} C_6H_{12}O_6 + O_2\uparrow + H_2O$

11) List out the events that Happen in Photosythesis.

Ans Absorbtion of light energy by chorophyll convertion of light energy into chemical energy.
Spliting of water molecules into hydrogen & oxygen.
Conversion of carbon-dioxide into glucose Carbohydrate.
Release of O_2 & H_2O vapours.

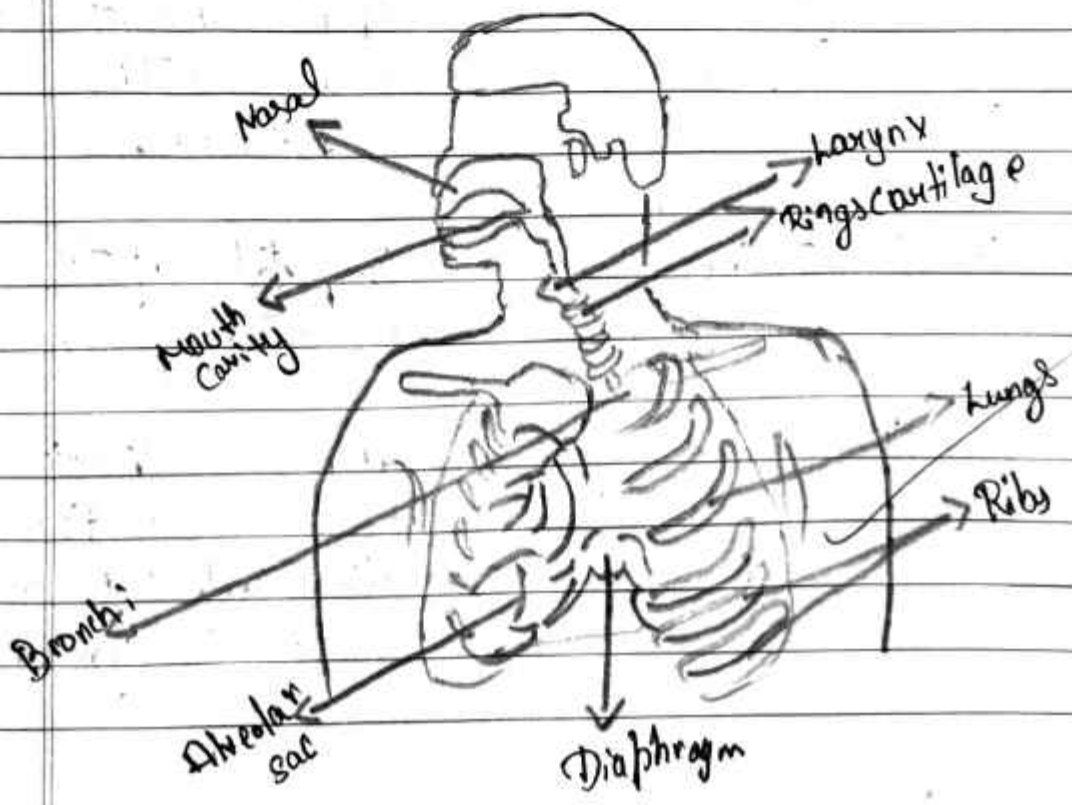
12) Write the Structure & function of Human Degestion and function of Human Degesting System.



	Structure	Function
1)	Mouth	Food is taken in this Process of takin food in is called Ingestion.
	Teeth	Food is broken down into small Pices
	Tongue	• mixes food throughly with Saliva. • Helps in Swallowing food • Saliva is Secreted • It also Secreats Salivery Amylase enzym

Saliveny Amylase	It breaks down complex Sugar into Simpler Sugar
Food Pipe (Oesophagus) long tube like Structure	Passage through which food tracbe to Stomach
Peristattic Movement	the food pipe coutruts rhythmically to push food fooddword chista movement called Peristatic movement.
Pesin	digets Protein
mucus	Products inner living of Stomach from action of acid.
Sphineter muscle	food is released in small amount inside small instine from stomach.
Small intestine	completed digestion of carbon hydrates, Proteins & fats
villi	Ahrobs digestion faced Recive Secreations from liver and Pancreas for Complexed digestion.

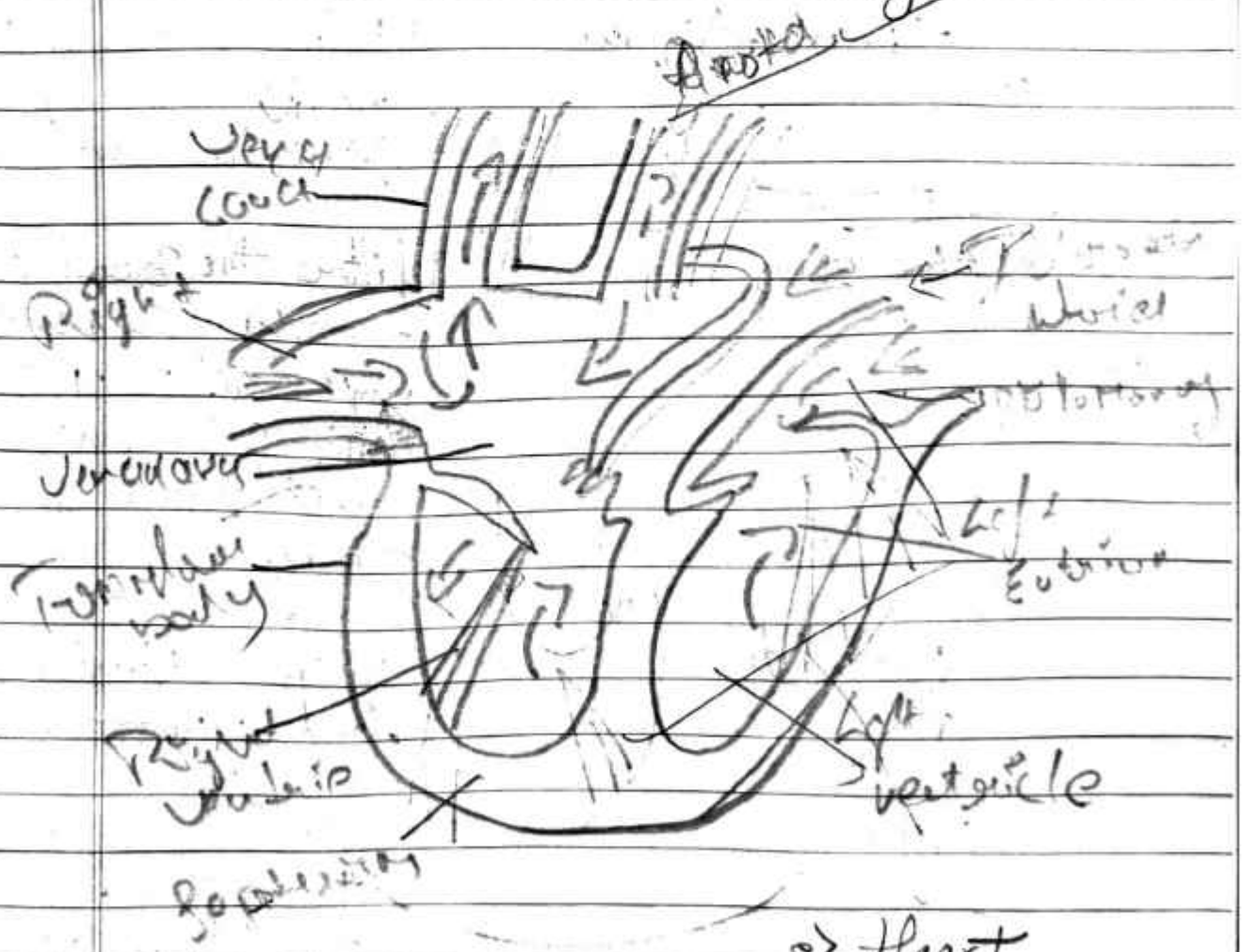
Trypsin	Digest Protein
Lipase	Breaks down emulsified fat.
Liver	Gall bladder Produces bile juice. /Salt breaks down fats /globules.
Bile juice	Increase the effienly Enzymes action.
Large Intestive	Absorbs remaing water and salt from food
Anus	degestion of waste material.
Anus sphinter	Helps in regulating the exits of waste material.



Structure	Function
Nostril	Have fine hair which filters the air Pulling throughout it.
Nasal Cavity	Air Paves in and out Of Nasal Cavity Produces mucus attraching dirt in air
Throat is also Called Pharynx	Passeage for the movement Of air from Nasal cavity to oral cavity.
Larynx Orosial	Produces Sound
(Cavity Oral)	Regulates the air flow into lungs
(voice box)	
Epiglottis	Preauts food from entering respiratory system

Trachea	- given support to ensure air passage do not collapse during breathing.
Branchi (Trechea further divides into 2 branches of Branchi)	-> Passage for air in and out
-> Brunchioles	-> Distributes the air where O_2 is exchanged with CO_2
	-> Oxygenated blood is transported ~~by~~ drogen blood cell having hemog -lobin.
-> Pulmonary veins	-> Transports oxygen blood from lungs to heart

Pulmonary Artery	→ Transports CO_2 back to Alveoli → Alveoli transport CO_2 out of body as wents.
Diaphragm (located below lungs)	→ Relaxes when exhaled → Departes chest cavity from abdominal cavity



→ Heart

Fig 6.5

Structure	Function
Renal Arteries	Lassien unfilt oxygen ted blood froon aorta to kidney
Nephron	Blood unfiltered goes into large filtertion unit in Kidney when blood is filtered
→ Bowmans Capsule	unfiltered blood from Renal Artery is collected in Bowman capsule & sent to Glomerieles.
→ Glomerulus	filters the Blood by removing urea or uric acid Protein water & Some salts are re absorbed back to body
Renal Clam	Carries filtered blood from glomerules.
Ureter Caprir	urine formed in transported from long tube from kidney to urine bladder.

Urinary bladder	Stores urine until the Pressure expand
urethra	Passes out the urine urin is exreted out

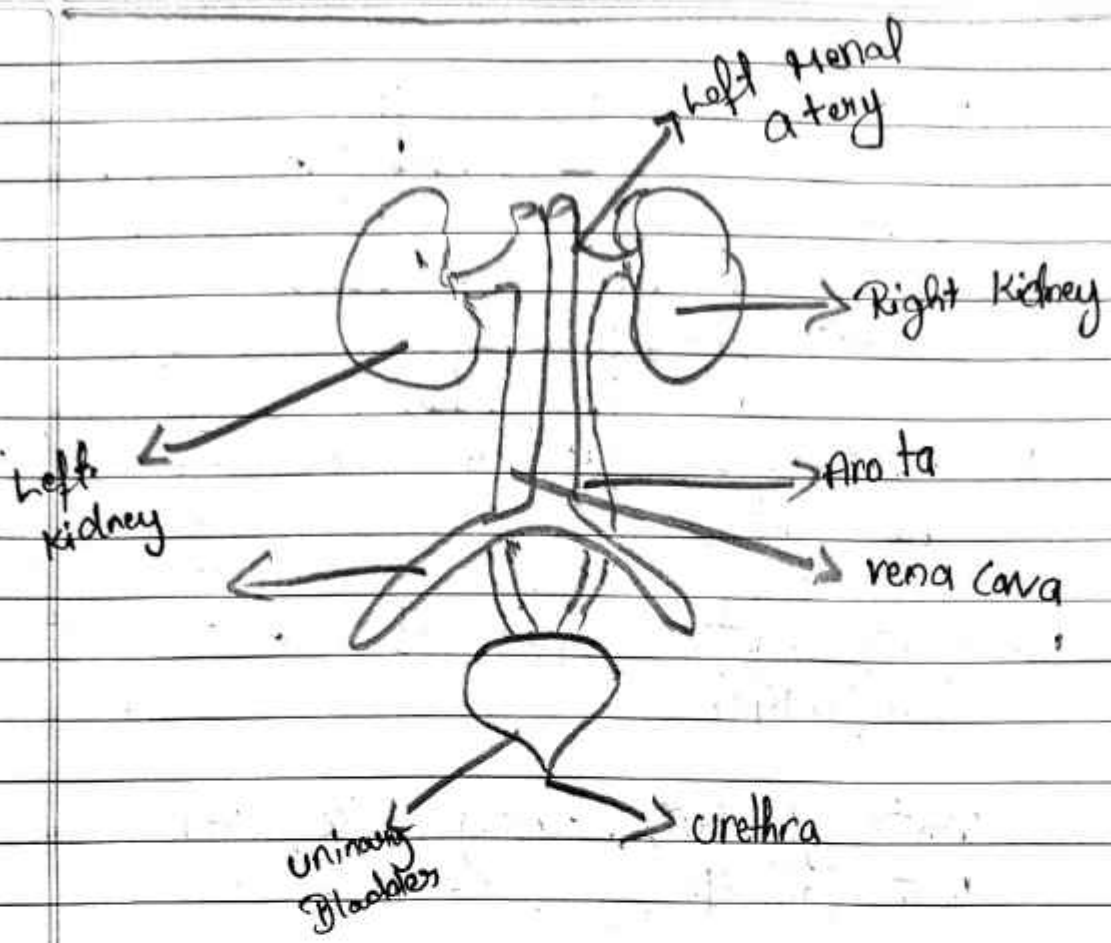
16. what are different excratory strategies found in Plants.

Ans Plants get rid of exces water by transpiration.

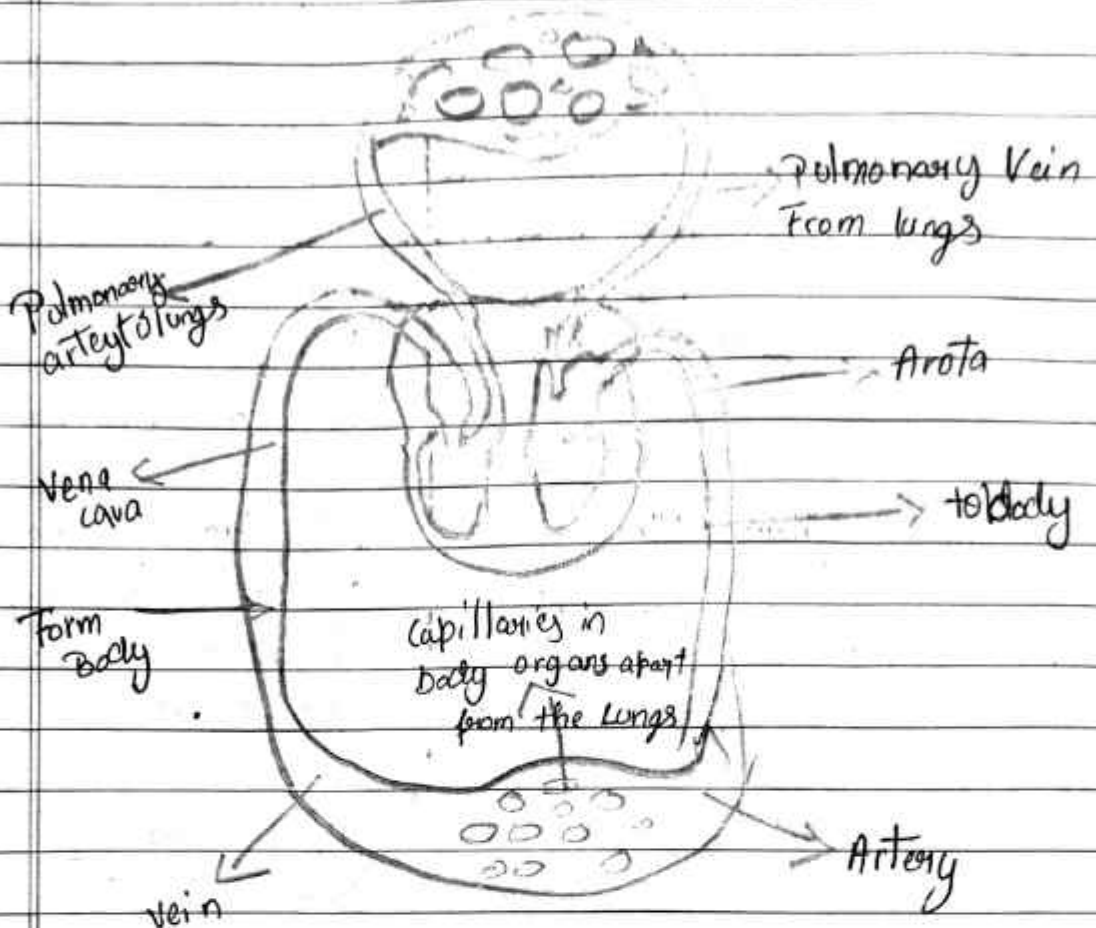
- waste products may be stored in leaves that fall of
- waste product are stord as resins & gum in old xylem
- Plant excreats some water substance into the soil around then
- many waste Products are stored in cellular

25/06/25

Good


Left renal artery
Right Kidney
Left Kidney
Aorta
rena cava
urethra
Urinary Bladder

-> Kidney



•> Schematic representation of transport exchange of O_2 and CO_2

Fig 5.3

Structure	Function
Pulmonary veins	Oxygenated blood is transport from lungs to the left Atrium
Left Atrium (thin walled)	Rich blood comes left atrium relaces of than contract the blood to left ventricle
Left ventricles (thick walled	relax when O_2 rich blood come contract & pump the blood to Aorta
Aorta longest Artery	Pump O_2 rich blood from heart to rest of the body by artery
Artery thick walled	carries O_2 rich blood to all over the Body
Superior vanacava thin walled vein	Carry deoxygented blood O_2 poor blood from upper Part to right atrium

Inferior Vanacava thin walled vein bagerthlein	transports back O_2 Poor blood from lower Part of body right atrium.
Right atrium	Relaxes when O_2 from poor blood comes & contract & pump blood to right ventrical
Right ventricle	Relaxes & Pump blood to lungs deoxygenated
Pulmonary asteris	Carries O_2 Poor blood lungs for oxygenter.

Systolas

good

28/7/2025

Physic

Chapter-2

1 Question and answer.

1) What is a electric charge?

Ans Electric charge is a physical property of matter that experiences force as it may attract or repelled each other.

There are mainly type of electric charge.

- Negative charge - e^-
- Positive Charge - P^+

→ Electric charge is represented by Symbol-Q

→ S.I unit of electric charge is coulomb - C

2. How much coulomb of charge does one electron and Proton Carry?

Ans $e^- = 1.6 \times 10^{-19} C$

$P^+ = 1.6 \times 10^{+19} C$

③ what is electric current ?

Ans Amount of flow of electric charge per unit time, that is coulomb per unit. time.

-> Electric current is represented by symbol is I.

-> $I = \frac{Q}{t} = \frac{C}{S}$ Q = electric charge
t = time (S)

$I = C/S = A$ (Ampere)

* Instrument used for measuring A is Ammeter.

4. What is Potential difference ?

Ans Difference in electric Pressure created by cell or battery, which Pushes the electron to move circut is called Potential difference.

S.I unit of Potential difference = V (volt)

1 volt = $\frac{1 \text{ Joule}}{1 \text{ Coulomb}}$ $\frac{\text{Work done}}{\text{Charge.}}$

1 J of work done to carry 1 Coulomb of charge

Instrument used to voltmeter.

5) Define electric resistance of a conductor.

Ans A conductor electric resistance is defined as the resistance it provides to the flow of current.

$R = \frac{V}{I}$ and S.I Unit Ω Ohm.

6) State Ohm's law.

Ans Ohm's law States the current flowing through a conductor is directly proportional to the voltage applied across it, Provided the resistance in given temperature remains constant.

$V \propto I$

As voltage increase the current increases $V = IR$, R is constant.

7) list the factors on which the resistance of a conductor in the shape of wire depends.

Ans The factors on which the resistance of conductor ~~to length of the conductor R α L~~ in the shape of wire depends.

- Length of conductor - Resistance is directly proportional to length of the conductor

$R \propto L$

- Area of Cross Section of Wire : the Resistance is inversely Proportional to area of Cross Section of wire.

$$R \propto \frac{1}{A}$$

- The resistance of Conductor depends on the nature of the it's meterial - Resistirity [P]
- Temperature of Conductor Resistance is directly Proportional to the temperature of Conductor

$$R = P \frac{l}{A}$$

8. Why are metals good Conductors of electricity where glass is a bad Conductor of electricity?

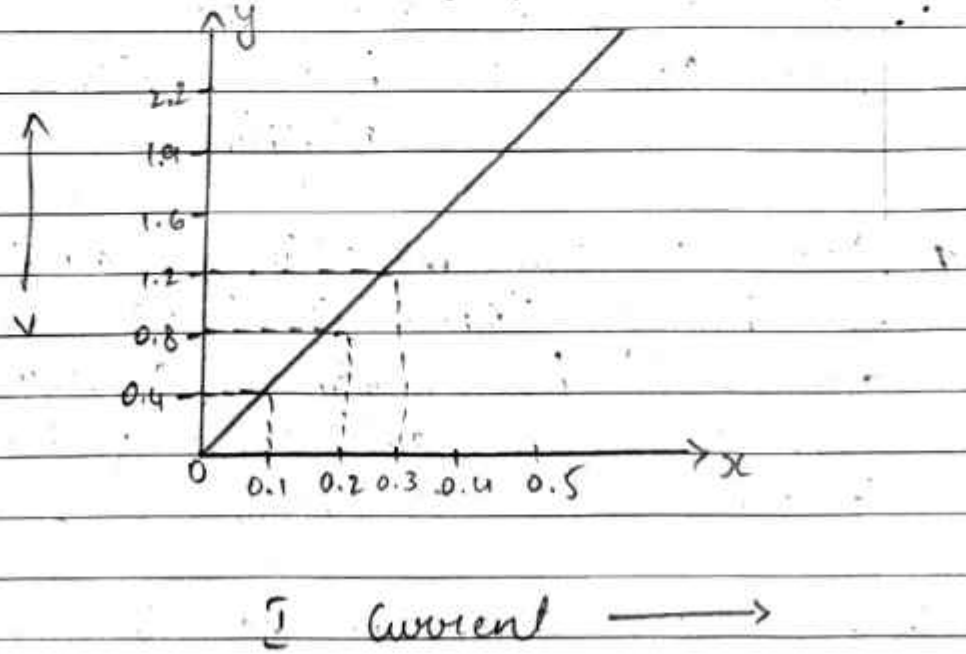
Ans. Metal are good Conductor of electricity as they have free electrons to Conduct where as glass is a bad Conductor of electricity as it does not allow electricity to pass through it due to non availability of free electrons.

9. Why alloys commonly used in electricityeal heating devices?

Ans The alloys are commonly used in electricity heating devices because,

- Alloys : are combination of two or more metals.
- It resistivity is higher than that of its constituent metal.
- It neither gets oxidise or burn easily at higher temperature.
- It shows less rapid variation of resistivity due to change in temperature.

10. V - I graph for a nichrome coire is given below that do you infer from this graph ? Draw a labeled circuit diagram to obtain such a graph.

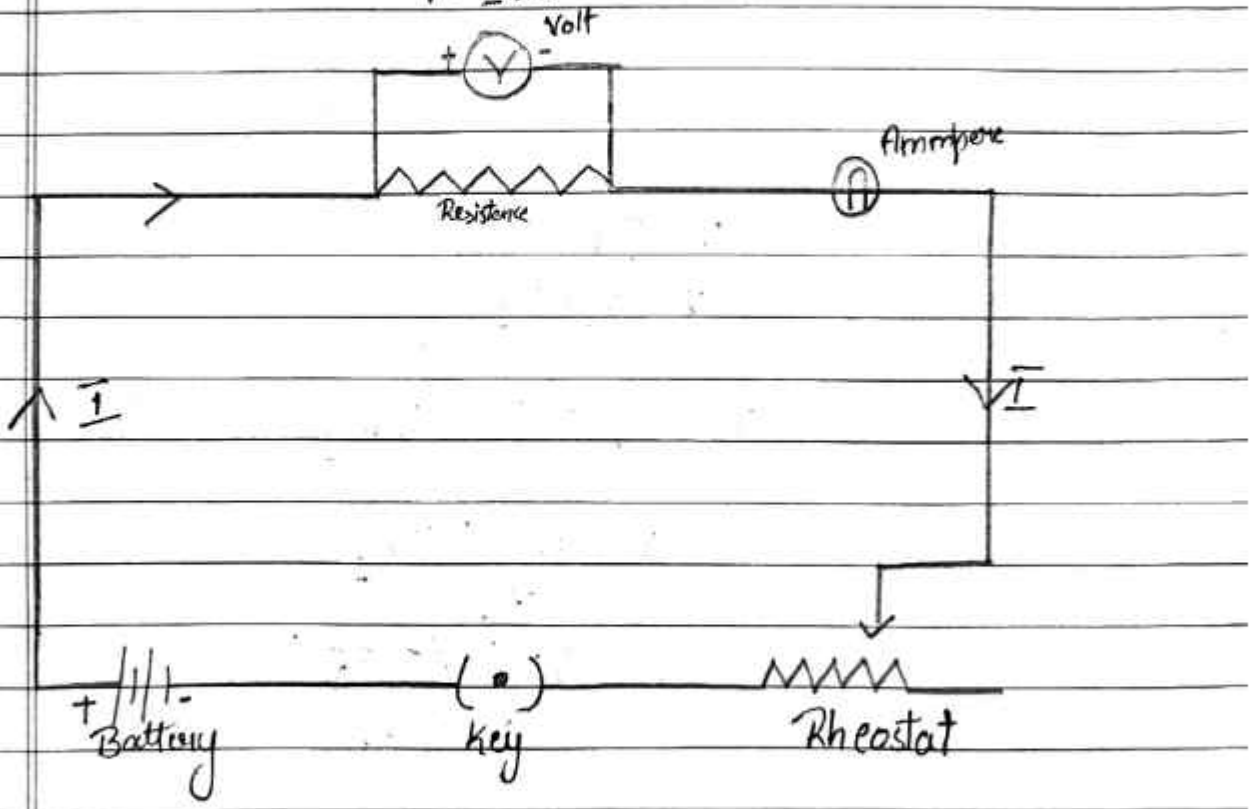


Ans From this V-I graph for a michrome wire the straight line plot shows that as the current through a wire increases the potential difference across the wire increases linearly.

$$V \propto I$$

$$\frac{V}{I} = R \quad (\text{constant})$$

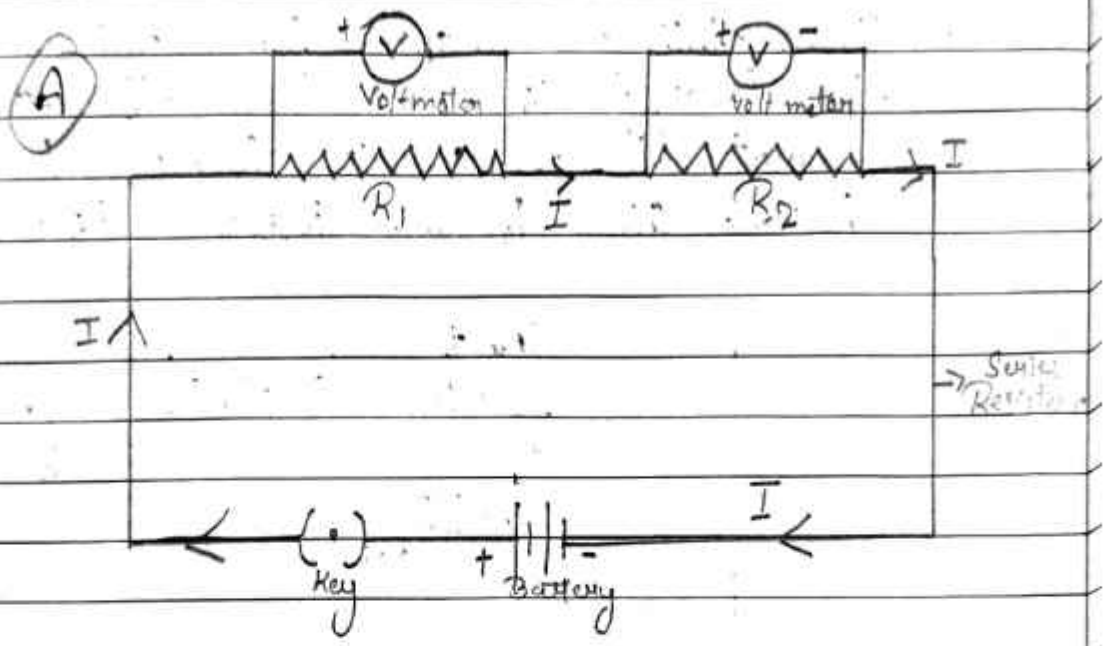
$$V = IR.$$



ii) Apply ohms law to obtain relation for combined resistance when two resistence R_1, R_2 are connected in series and parallel circuit.

Soln

Next Page →



$$V = IR$$

$$V = V_1 + V_2$$

$$V_1 = IR_1 \quad V_2 = IR_2$$

$$V = IR + IR_2$$

$$IR$$

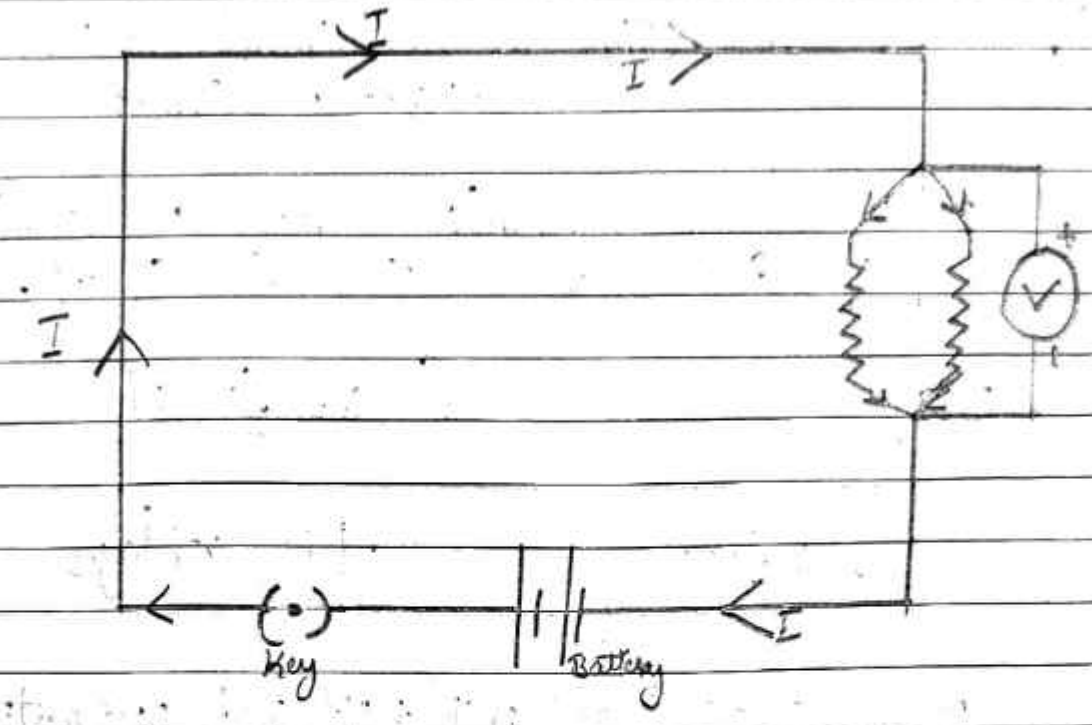
$$V = I(R_1 + R_2)$$

$$V = IR_s$$

$$R_s = R_1 + R_2$$

→ When R_s is equivalent resistance of series combination.

B



$V = IR$

$I = I_1 + I_2$

$I_1 = \frac{V}{R_1}$, $I_2 = \frac{V}{R_2}$

$$I = \frac{V}{R_1} + \frac{V}{R_2}$$

$$I = V\left(\frac{1}{R_1} + \frac{1}{R_2}\right)$$

$$I = V\left(\frac{1}{R_p}\right)$$

$$I = \frac{V}{R_p}$$

$$\frac{1}{R_p} = \frac{1}{R_1} + \frac{1}{R_2}$$

Where R_p is equivalent resistence of the Parallel combination.

Q) Write the advantage and disadvantages of Series and Parallel Circuit.

Ans

Series Circuit

Advantages	Disadvantages
⇒ Do not get heated easily therefore any very flamm-able Object do not catch fire in case of Overheating.	⇒ Not used undomestic Circuit as, if there is any fault or break at one Point of the appliances. Connected after will be cut off from the Supply.

Parallel Circuit :-

Advantages	Disadvantages
* Voltage remains constant each component will get same amount of voltage.	* Need lot of wire to constant.
* If there is a fault in one electrical appliance the current is able to pass through different parts of current	* Cannot increase the voltage as the resistance decreases in ideal Parallel Circuit.

13) State the factor on which the heat produced in a Circuit carrying conductor depends Give Parallel application of their effect.

Ans According to Joules law of heating effect the heat (H) Produced in Current Conductor depends on.

① Square of Current Pass through. ($H \propto I^2$)

② Resistance of conductor ($H \propto R$)

* Time for which current is passed in conductor ($H \propto t$)

$H = I^2 R t$

→ Practical Application of heating.

effect.

① Electrical heather

② Fuse.

14) Write two Point of difference between electric energy and electric Power.

Ans	Electric energy	Electric Power
	→ The work done or energy Supplied by the Source in mantaing the flow of electric current is Called is electric energy. It appeares in the form of heat given by.	→ The time at which electric energy is Consumed or dissipated by electric device is called electric device Power and is given by $P = VI = \frac{V^2}{R} = I^2R$
	$H = VIt = \frac{V^2t}{2} = I^2Rt$	It is equal to the route of doing work by energy Source
	→ SI unit is Joules (J)	$R = \frac{W}{t}$ = SI unit = Watts $1\ W = 1\ W = 1\ J/s^{-1}$

15) Which is the commercial unit of eletric energy convert it into Joules.

Ans Kilo watts hours (Kwh) : Commerical unit of eletric energy

1Kwh = 1000 wh

= 100 J/s × 3600 s

=> 3600000 J = 3.6×10^{-6} J.

Exercises

1. A piece of wire of resistance R is cut into five equal parts. These parts are then connected in parallel. If the equivalent resistance of this combination is R_1 then the ratio R/R_1 is

a) 1/25 c) 5

b) 1/5 d) 25

Soln: $R = \frac{R}{5} \Rightarrow \frac{1}{R_p} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} + \frac{1}{R_4} + \frac{1}{R_5}$

$\frac{1}{R_p} \Rightarrow \frac{1}{R/5} + \frac{1}{R/5} + \frac{1}{R/5} + \frac{1}{R/5} + \frac{1}{R/5}$

$= \frac{5}{R} + \frac{5}{R_1} + \frac{5}{R} + \frac{5}{R} + \frac{5}{R} = \frac{1}{12} = 25$

$= \frac{R}{R'} = 25$//

2. Which of the following terms does not represent electrical power in a circuit?

a) I^2R c) V_i

b) IR^2 d) V^2/R

3. An electric bulb is rated 220v and 100w. When it is operated on 110 v, the power consumed will be -

a) 100 w c) 50w

b) 75 w d) 25 w

Soln:

Given : $V = 220w$

$P = 100w$

$$P = \frac{V^2}{R}$$

$$100w = \frac{220 \times 22V}{R}$$

$$R = \frac{220 \times 22V}{100}$$

$$R = 484\ \Omega$$

$V = 110$

$P = ?$

$R = 484\ \Omega$

$$P = \frac{V^2}{R}$$

$$= \frac{110 \times 110}{484} = \boxed{25w}$$ //

4 Two conducting wires of the same material and of equal length and equal diameter are first connected in series and then parallel in a circuit across the same potential difference. The ratio of heat produced in series and parallel combination would be.

Sol: Given,

Series $R_{ps} = R + R = 2R$

parallel $\frac{1}{R_p} = \frac{1}{R} + \frac{1}{R} = \frac{2}{R}$

$R_p = \frac{R}{2}$

$\text{Heat} = \frac{V^2}{R} t$

$= \frac{V^2}{R_1} t$ $\Rightarrow \frac{V^2}{R_s} \times \frac{V^2}{R_p}$

$\frac{V^2}{R_2} t$

$\Rightarrow \frac{V^2 R_p}{V^2 R_s}$

$\Rightarrow \frac{R_p}{R_s} = \frac{R/2}{2R}$

$\Rightarrow \frac{R}{2 \times 2R} = \frac{R}{4R}$

$\Rightarrow \frac{1:4}{}$

~~7. A vales of current I flowing in a given resistor for the corresponding value of Potential differ V across the resistor are given below.~~

7. when a 12 V battery is connected across an unknow resistor there is a current of 2.5mA in the circuit find the vale of the resistance of the resistior.

Soln Given

$V = 12V$ $\quad$ $1A = 1000mA$

$R =$

$I = 2.5mA$ $\quad$ $2.5 \times 10^{-3} A$

$$R = \frac{V}{I}$$

$$R = \frac{12}{2.5 \times 10^{-3}} = 4.8 \times 10^{3} \ \Omega$$

5. How is a voltmeter connected in the circuit to measure the potential difference b/w two points?

=> Parallel.

6. A Copper wire has diameter 0.5 mm and restivity of $1.6 \times 10^{-8} \ \Omega \ m$. What will be the length of this wire to make its resistance $10 \ \Omega$. How much does the resistance change if the diameter is doubled?

Soln: Given,

Diameter = 0.5 mm

$\rho = 1.6 \times 10^{-8}\ \Omega m$

$R = 10\ \Omega$

$l = ?$

$$R = \rho \frac{l}{A}$$

$$l = \frac{RA}{\rho}$$

$$\therefore l = \frac{10 \times 0.5 \times 0.5 \times 10^{-6} \times 22}{7 \times 4 \times 1.6 \times 10^{-8}}$$

$$= 122.6\ m$$

8. A battery of 9V is connected in series with resistors of 0.2 Ω, 0.3 Ω, 0.4 Ω, 0.5 Ω and 12 Ω, respectively. How much current would flow through the 12 Ω resistor?

Soln: Given,

$V = 9V$

Series $R_s = R_1 + R_2 + R_3 + R_4 + R_5$

$= 0.2 + 0.3 + 0.4 + 0.5 + 12\ \Omega$

$= 13.4\ \Omega$

$$I = \frac{V}{R} = \frac{9}{13.4} \Rightarrow 0.67A$$

$12\ \Omega = 0.67\ A$

As the current flowing through all the resistor in same in series.

9. How many 176 Ω resistor in [parallel] are required to carry 5A on a 220V line?

Som: Given,

$R = 176\ \Omega$

$\frac{1}{R_p} = \frac{1}{176} + \frac{1}{176} + \frac{1}{176} \ldots\ n \text{ times} = \frac{\Omega}{176}$

$I = 5A$

$V = 220\ V$

$R_p = \frac{V}{I} = \frac{220}{5} = 44\ \Omega$

$\Rightarrow \frac{1}{44} = \frac{n}{176}$

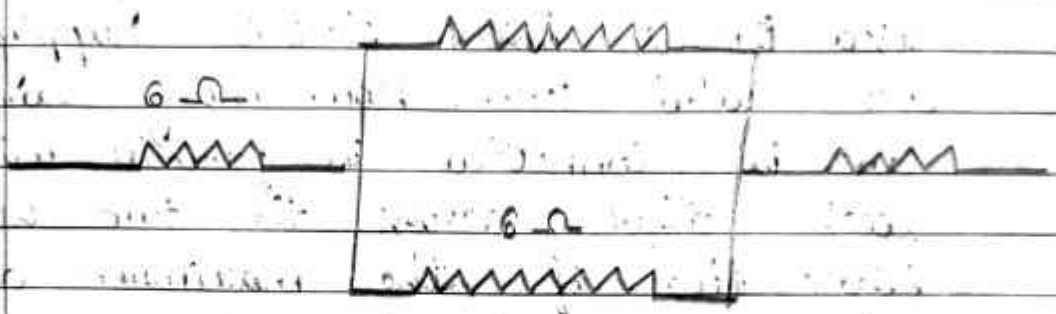
$\Rightarrow 44n = 1 \times 176$

$\Rightarrow n = \frac{176}{44} = 4//$

$\therefore n = 4 \text{ times}$

10. Show how you would connected three resistors each of resistor 6 Ω, so that the combination has a resistance of

i) 9 Ω

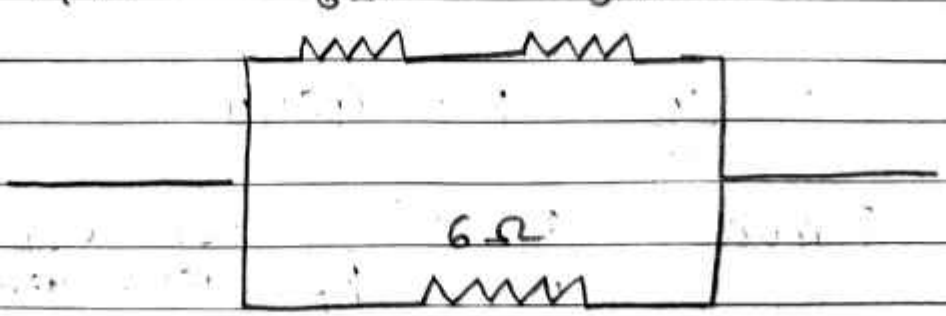


$$\frac{1}{R_p} = \frac{1}{6} + \frac{1}{6} = \frac{2}{6}$$

$$R_p = \frac{6}{2} \Rightarrow 3\ \Omega$$

$$R_s = 6 + 3 \Rightarrow 9\ \Omega$$

ii) 4 Ω



$$R_s = 6 + 6 \Rightarrow 12\ \Omega$$

$$\frac{1}{R_p} = \frac{1}{6} + \frac{1}{12} \Rightarrow \frac{2+1}{12}$$

$$\Rightarrow \frac{3}{12}$$

$$\Rightarrow \frac{1}{4}$$

$$R_p = 4\ \Omega$$

11. Several electrical bulbs designed to be used on a 220V electric supply line, are rated 10W. How many lamps can be connected in parallel with each other across the two wires of 220V line if the maximum allowable current is 5A?

Soln: $I = 5A$ Maximum allowable current

$V = 220V$

$P = 10W$

$P = \frac{V^2}{R}$ $\quad R = \frac{220 \times 220}{10}$

$R = \frac{V^2}{P}$ $\quad R = 4840\ \Omega$

$R_{equal} = \frac{R}{n} \Rightarrow \frac{1}{R_p} = \frac{1}{4840} + \frac{1}{4840} + \frac{1}{4840} \times n$

$\Rightarrow \frac{n}{4840}$

$R_p = \frac{4840}{n}$

Applying $V = IR_p$

$$220 = 5 \times \frac{4840}{n}$$

$$n = 5 \times \frac{4840}{220} \; ; = \frac{24200}{200}$$

$$\Rightarrow \underline{110}$$

$\therefore$ Maximum no of bulbs can be Connected is 110.

---

12. A hot plate of an electric oven connected to a 220V line has two resistance coils A and B, each of 24 Ω resistance, which may be used separately, in series, or in parallel, what are the currents in the three cases?

$\Rightarrow$ Given,

$V = 220$

$R = 24\ \Omega$

Case 1 : Series - A = 24 Ω

B = 24 Ω

$$R_S = R_1 + R_2$$

$$= 24 + 24 \Rightarrow 48\ \Omega$$

$$I = \frac{V}{R} \Rightarrow \frac{220}{48} \Rightarrow \underline{4.6}\ A$$

Case 2: parallel

$$\frac{1}{R_p} = \frac{1}{R_1} + \frac{1}{R_2} \quad \& \quad \frac{1}{24} + \frac{1}{24}$$

$$\Rightarrow \frac{12}{24} + \frac{1}{12}$$

$$R_p = \underline{12\ \Omega}$$

$$I = \frac{V}{R} = \frac{220}{12} = 18.3\ A$$

Case 3: Connected Separately

$$R = 24\ \Omega$$

$$I = \frac{220}{24} = 9.2A$$

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13. Compare the power used in the 2Ω resistor in each of the following circuits
(i) a 6 v battery in series with 1Ω and 2Ω resistor

Soln: Case 1:

Diagram

Current is same in series

$$V = IR$$

$$I_S = \frac{V}{R_S} = \frac{6V}{3\Omega} = 2A$$

$$R_S = 1\Omega + 2\Omega = 3\Omega$$

Power dissipated

$$P = I^2 R$$

$$= 2A \times 2A \times 2\Omega$$

$$P = 8W$$

ii) a 4V battery in parallel with 12Ω and 2Ω resistor.

Diagram

* Voltage is same in parallel

Power dissipated

$$P = \frac{V^2}{R} = \frac{4 \times 4}{2} = \frac{16}{2} = 8W$$

16 Explain the following

a) Why is the tungsten used almost exclusively for filament of electric lamps?

Ans A tungsthas a very high melting Point 3380°C so it can't melt up to a high temperatire. This is reason why tungsthas is used almost filament electric lamps

b) Why are the conductor of electric heating devices, such as bread-toasters and electric irons, made of an alloy rather than a pure metal.

Ans Resistivity of an alloys is Generaly higher that of it's Constituent metals.

c) Why is the series arrangement not used for domestic circuits?

Ans The Series Arrangement in Some Appliance can not get Sufficent potential drops proper working this is Possible only in Parallel Conection and in Series Arrangement if Break ~~Happ~~ Happens the Whole Circut Breakdown.

d) How does the resistance of a wire vary with its area of Cross section.

Ans $R \propto \frac{1}{A}$

The ristance of the wire is inversely proportional to its area of crosssection $R \propto \frac{1}{A}$

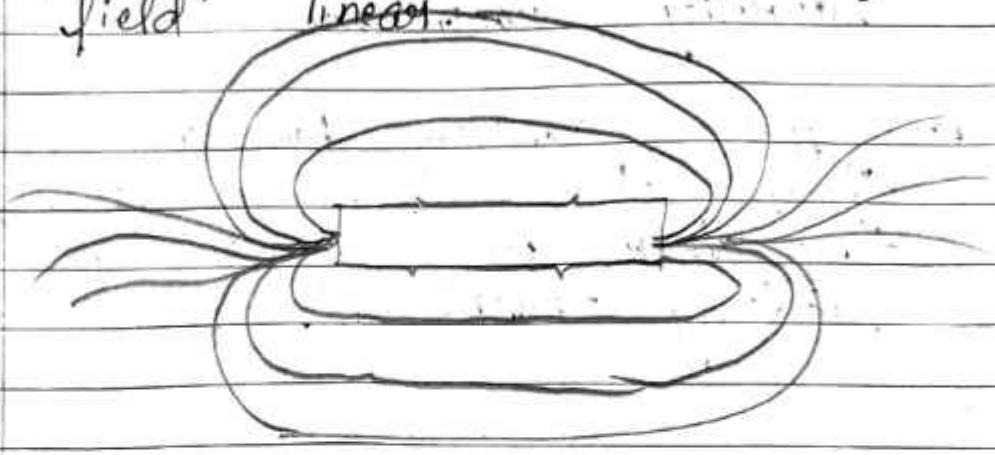
Q. Why are copper and aluminium wires usually employed for electricity transmission?

Ans Copper and aluminium have low resistivity therefore there will less energy loss. Hence those are usualy employed for electricity transmission.

lesson - 2

Magnetic effects of electric current....

1) Write the properties of magnetic field lines.



Ans Field lines emerge from north Pole of a magnet and merge at its South Pole.

b) They have both magnitude and direction.

c) They are closed curve lines from north Pole and South Pole

d) They do not intersect

e) The strength of a magnetic field is shown by the degree of closeness of the field lines.

2) State the right hand thumb rule.

Ans when holding a current carrying conductor such that the thumb Points towards the direction of current then your figers will wrap around the conductor in the direction of the field lines of the magnetic filed.

3) what is Solenoid ? How can this be converted into an electromagnets.

Ans Solenoid A coil of many circular turns of insulated copper wire wrapped closely in the steps of cylinder is called Solenoid.

-> current carrying Solenoid can be used to magnatise a piece of magnetic material like Soft iron when placed inside the coil acts as Electromagnet.

4) what is alternating current electrical appliances having a metallic body are connected to earth & why ?

-Ans the current that changes direction after equal intervals of time is called alternating current.

-> The metallic body is connected to earth

wire as it provides a low resistance conducting path from the current

→ This it ensures that any leakage of current to the metalic body of appliance keep its potential to that of that earth and will not get severs electric shock.

5. When does an electric short circuit occurs?

→ when a live wire Eg. a neutral wire course in contact directly or through a conductor due to damaged insulating, faulty appliance, etc the current flowing in the circuit raise suddenly and a short circuit occurs.

6. How damage done by electric short circuit can be prevented in buildings

→ By using safety device called electric fuse in circuit. Call prevent the damage or fire by electric short circuit or over ~~load~~ load.

Electric fuse - It is an thin wire made up of an alloy of tin or lead. It breaks by heating effects of electric current during short circuit

or overloading and prevent damage that may be caused in electrical appliances.

08/9/25

BIOLOGY
Control And Coordination

I Answer the following.

1. What is the difference between a reflex action and walking.

Reflex Action	Walking
> Spinal cord controls reflex action	> Brain controls walking
> It is a spontaneous immediate response to a stimulus. It happens without will of individual	> It is a voluntary action which occurs with the will of individual.

2. What happens at the synapse b/w two neurons.

=> The electrical impulse travels through axon and sets off the release of some chemicals [neuro transmitters] at the axon ending. These chemical cross the gap or synapse, and start a similar electrical impulse in a dendrite of the next neurons.

3. Which part of the brain maintains posture and equilblium of the body?

⇒ A part of the hind brain called the Cerebellum maintaines posture and equilbrium of the body.

4. What is the role of the brain of reflex action?

⇒ Spinal Cord controls reflex action. Only reflex actions such as Cerebral reflexes which requires thinking, involves brains.

5. What is the function of peripheral nervous System? Mention its components.

⇒ Peripheral nerous System facilitates the communication between the central nerous System and other parts of the body. PNS Consist Cronical nerves arising from the brain and Spinal nerve arising from the Spinal Cord.

6. Differentiate b/w Cranial nerves & Spinal nerves.

⇒

Cranial nerves	Spinal nerves
Cranial nerves arise from different parts of the brain	Spinal nerves arise from spinal cord.

7. How is the movement of leaf of the sensitive plant different from the movement of a shoot towards light?

⇒

Movement of the leaves of sensitive plant	Movement of shoot towards light.
➢ The movement is independent growth ➢ Change in the amt of water in the cells of leaves causes the movement ➢ The movement is fast	➢ The movement is depends on growth ➢ The movement is regulated by plant growth hormones. ➢ Shoot movement or stem growth is very slow.

8. How do auxins promote the growth of a tendrill around a support?

⇒ Tendril are sensitive to ~~for~~ touch. When they come in contact with any support, auxin diffuse from the tip of tendril to the sides of tendril that is not in contact with the support. This leads to rapid growth in the part of the tendril away from the support. This causes the tendril to circle around the tendril to circle around the object & then cling to it.

9. why is the use of Iodised salt advised?

⇒ Iodine is nessary for thyroid gland to make thyroxine hormones. Deficiency of iodine in our diet result in the disease Goitre. Hence the use of iodised salt is advisable.

10. How does our body respond when adrenaline is secreted into the blood.

⇒ When adrenaline is secreted into blood, the heart beats faster, resulting in supply of more oxygen to our increases. Finally the body is prepared to face emergency situations.

11. Why are some patients of diabetes treated by giving injections of insulin?

⇒ The sugar level in the blood rises causing many harmful effected in the patents suffering from diabetes Insulin is the hormone that helps to bring down the blood sugar levels. Hence the diabetic patients are treated by giving injections of insulin.

12. Give an example of a hormone secreted by the pituitary? How does it affect us?

⇒ An example for a hormone secreted by pituitary is growth hormone. It regulates growth and development of the body. The deficiency of this hormone in childhood leads to dwarfism whereas its hyper secretion leads to extremely tall condition [Giganism].

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13. Name the harmone produces by Thyroid gland and write its functions.

⇒ Thyroid gland secretes Thyroxin. It regulates fat, carbohydrate and protein metabolism in the body so as to provide the best balance for growth.

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14. Function of following plant Hormones:

a) Auxius.

★ It promote growth.
★ It helps in the elongation of cells
★ It helps in the bending of stem towards light sources.

b) Gibberellins

* It helps in the growth of the stem and flower.

c) Cytokinins

* It promotes cell devision.
* It helps in rapid cell devision in fruits and seeds.
* It helps in opening of stomato during day time.

d) Abscissic acid

* It inhibits the growth of plant
* It is responsible for wilting of leaves.
* It helps in the closing of stomato during night.

e) Ethylene

* Ripening of fruit ageing leaves and flower.

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15. List the Hormone and function of following endrocrine glands :

a) Pituitary gland
b) Thyroid
c) Adrenal gland
d) Pancreas
e) Testies
f) Ovaries

⇒	Hormones	Functions.
a)	Growth Hormones	* Control the growth of childrens & adults.
b)	Thyroxine	* It regulates carbohydrate protein and fat metabolism
c)	Adrenalin	* It controls heart beat respiration & blood pressure.
d)	Insulin	* Regulates the blood sugar level.
e)	Testosterone	* It helps in the formation of ~~sugar~~ sperms.
f)	Estrogen	* It helps in the formations of eggs & maintain pregnancy.

6. How is brain protected in our body?

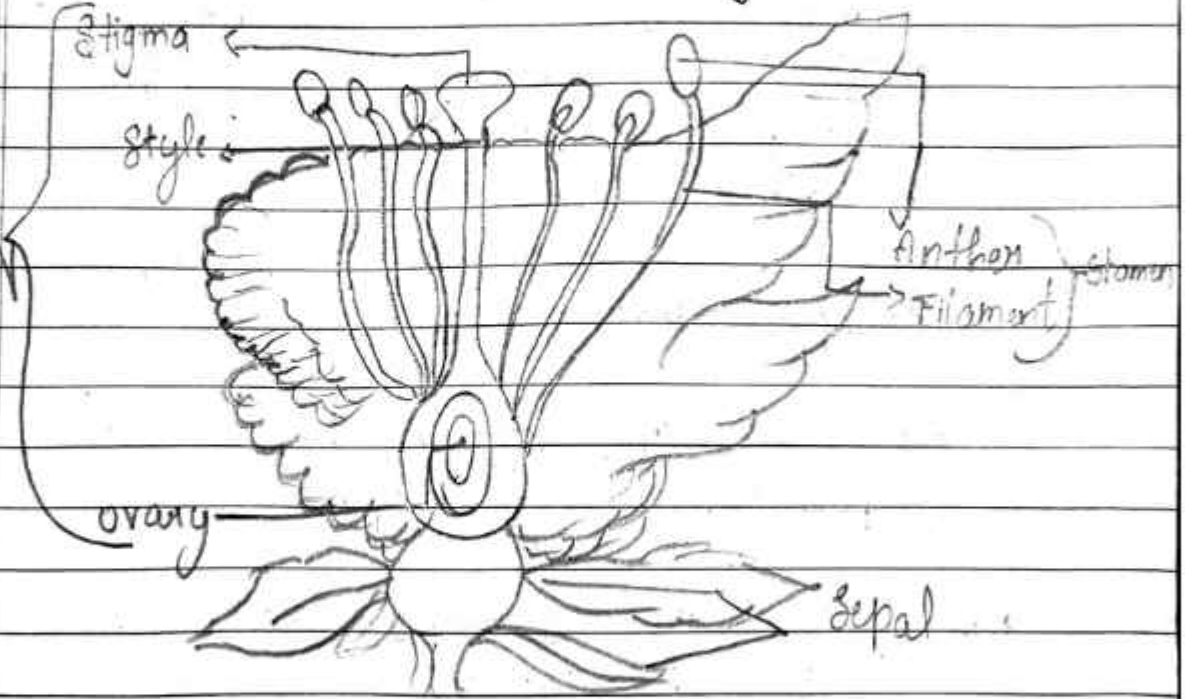
=> The brain sits inside a bony box called cranium. Inside the box, the brain is contained in a fluid. [Cerebro spinal fluid.] - filled balloon like sac. [Menings] which provides further shock absorption.

How do organisms reproduce?

I Answer the following

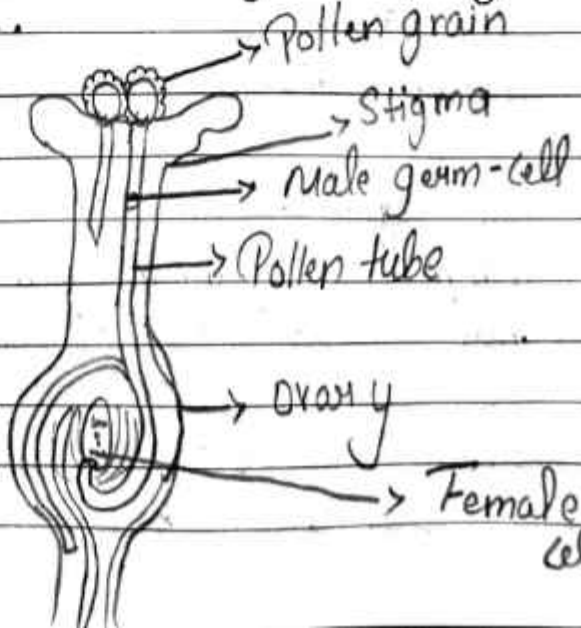
1. Draw neat labelled diagram of Sexual reproduction in flowering plants

Ans



2. Draw a neat labelled diagram of Germination of Pollen on Stigma.

Ans



3. How does binary fission differ from multiple fission

=> Binary fission

It is a type of asexual reproduction where a single cell divides into two daughter cells of equal size & each rapidly grows into an adult.

Example - Ameoba

multiple fission

In this type of asexual reproduction cell divides several times by mitosis Producing several nuclei and then multiple daughter cells.

example - plasmodium.

4. How will an oragnism be benefited if it reproduces through spores?

Ans In some organisms like bread mould [fungi] thick walled spores are formed which help them to survive unfavorable condition these germinate an availability of suitable environment.

5. Can you think of reasons why more compose organism cannot give rise to new individuals through regeneration.

Ans Multi cellular organism are not simply a random mass of cells but a coore

- fully organized entity of tissues and organs are placed at definite positions in the body to form organ systems. These system are well coordinated to perform specific functions. Hence complex organisms cannot reproduce through fragmention.

6. Why is vegetative propagation practiced for growing some types of plants?

Ans Vegetablere Propagation is practiced in some plants because.

* Plants raised by vegetative propagation can bear flowers & fruits earlier than those produced from seeds.

* Plants such as banana, rose and jasmine that have lost the capacity to produe seeds can be propagated by vegetative Progatation....

* All the plantlets developed by vegetative propogation are genetically identical to their parent plant.

7. Why is "DNA" copying an essential part of the process of reproduction?

Ans "DNA" is the heredity substance which makes Proteins. Proteins gives rise to characteristic features of an organism. copying of DNA.

results in transfer of information to form a complete organisms.

8. Explain the brass of Regeneration in planaria.

Ans If an individual planaria is somehow cut into many pieces, each piece grows into a complete organisms. Specialised cells in the body of planaria proliferate and make large members of cells. These cells undergo differentiation to become various tissues, finally leading to the formation of entire body.

9. Name the plant that reproduce through leaves. Is there any advantages from this way of reproduction?

Ans Bryophyllum reproduces asexually by producing buds in the notches along the leaf margin.

A large number of young plants are produced by a single leaf, when the leaf falls on the soil the plantlets develop into new plants that help the survival of species.

10. what is the role of the seminal vesicles and the prostate gland?

Ans Secretions of the seminal vesicles and.

The prostate gland make the transportation of sperms easier and this fluid also Provides nutrition.

11. What are the changes seen in girls at the time of Puberty?

Ans The changes (Secondary sexual characters) seen in girls at the time of Puberty are as follows.

* Breast size begins to increase, with darking of the skin of the nipples at the tips of the breast.
* menstrual cycle starts.
* Thick hair starts growing in the genital area b/w the thighs and armpits.
* Pimples develop on face and widening of hips occurs.
* The skin frequently becomes oily.

12. How does the embryo get nourishment inside the mother's body?

Ans The embryo gets nourishment from the mother's blood with the embryo's side are blood spaces, which surround the villi. This Provides a

large surface area of for gulose and oxygen to pass from the mother to the embryo.

13. If a women is using a copper - T will it help in protecting her from sexually transmitted diseases?

Ans NO, Copper - T cannot help a women in Protecting his from sexually transmitted disease.

14. What are the advantages of sexual reproduction over asexual reproduction.

Ans Sexual reproduction results in addition of various to the population which ultimately contribute to evolution since no genetic variation occur among the offsprings asexual reproduction has lesser singnifinale for evolution of species.

15. Why does menstruation occur?

Ans The menstruation eyele occur due to the rise and fall of hormones such as luteinising hormone. this cycle results in the thickeing of the living of the uterus, Es the growth of an ovum. Ovum is released in the middle of the cycle. If it is not fertilised by a sperm, the uterine lining is broken down and comes through vagina as

blood and other fluids. This is known as menstruation.

16. What are the different methods of contraception?

Ans In mechanical barrier method, ovum and sperms are prevented from physically meeting.
Ex -> use of condoms.

* Certain drugs are taken orally as pills changes the hormonal balance of the body so that ova are not released, thus preventing conception.

* Insertion of intra uterine devices such as copper-T in uterus can prevent pregnancy.

* In surgical method, the vas deferens in the male is removed or tied up whereas the fallopian tube in females is removed or tied up respectively, to prevent the transfer of gamets to the site of fertilisation.

17. How does reproduction help in providing stability to populations of species?

Ans Reproduction is the process of producing new individuals of the same species existing individuals of a species. So it helps in proof providing stability to populations of spees by bringing.

a balance b/w rate of birth and death in a given Population. The rate of birth should be approximately equal to the rate of death