

CBSE Class 10 Science Question Paper Solution 2020

Set 31/5/1

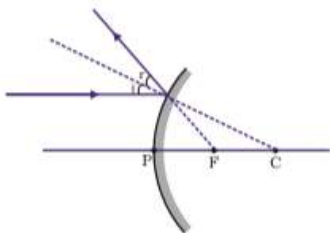
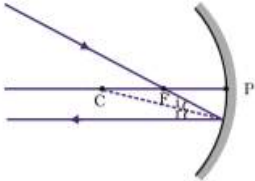
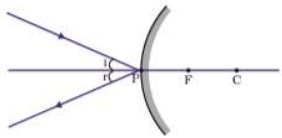
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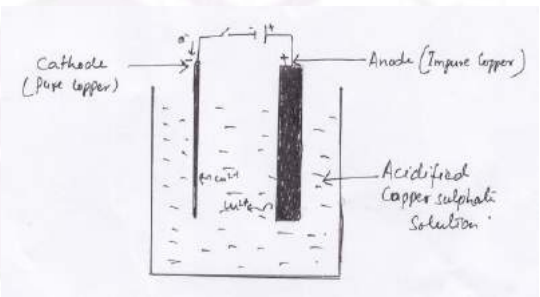
SET-1

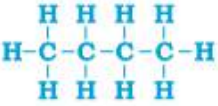
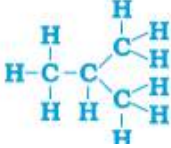
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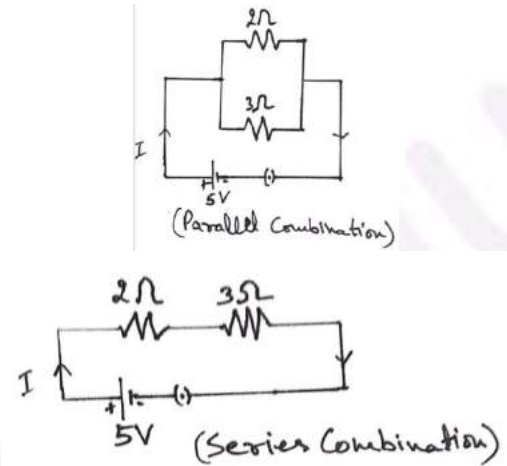
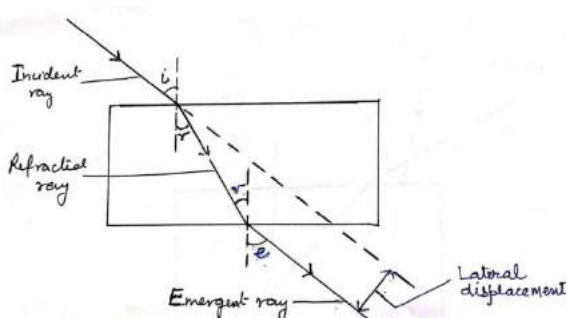
MARKING SCHEME-CLASS X SCIENCE (2019-20)			
QUESTION PAPER CODE :31/5/1			
S.NO	Value Points/Expected Answer	MARKS	TOTAL MARKS
SECTION A			
1.	No charged particles/ions	1	1
2.	All are metalloids/Shows the properties of metals and non-metals OR Properties of elements are a periodic function of their atomic number	1	1
3.	(a) Cells which convert solar energy to electrical energy/electricity (b) Voltage – 0.5 to 1V Electricity –0.7W (c) India receives great amount of solar energy throughout the year. (d) Advantages :- No moving parts/require little maintenance /work quite satisfactorily without any focusing device/can be set up in remote and inaccessible areas. (Any Two)	1 ½ ½ 1 ½ + ½	4
4.	(a) Thyroid stimulating hormone. (b) It stimulates / regulates thyroid gland to produce thyroid hormone or thyroxine. (c) Because high and low TSH level may increase the chances of miscarriage. (d) Proper medication is required.	1 1 1 1	4
5.	(C) / remains unchanged	1	1
6.	(B) / 10^{-3} A and 10^{-6} A respectively	1	1
7.	(A) / 5A	1	1
8.	(D) / I , II and III OR (D) / Reduce	1	1
9.	(B)/ Chipko Movement	1	1
10.	(B) / Decomposition & Redox	1	1
11.	(C)/ Green	1	1
12.	(B) / XY_2 OR (B) / (C) Group 16 and period 3 /Group 17 and period 3 (Note- Both are correct, marks to be awarded for any one)	1	1
13.	(iv) / (A) is false, but (R) is true	1	1
14.	(ii) / Both (A) and (R) are true, but (R) is not the correct explanation of the assertion(A)	1	1
SECTION B			
15.	(a) 'M' is magnesium /Mg 'N' is Magnesium oxide / MgO (b) $2Mg + O_2 \rightarrow 2MgO$	½ ½ 1	

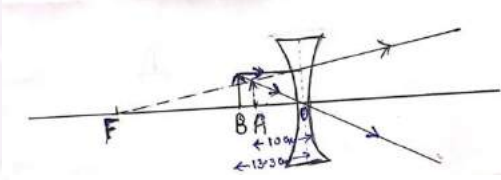
	(c) 'M' undergoes oxidation because oxygen is added to it/ Loss of 2 electrons	½ +½	3
16.	<p>(a) Anode- Oxygen Cathode- Hydrogen</p> <p>(b) Because one molecule of water contains two atoms of hydrogen and one atom of oxygen/ $2\text{H}_2\text{O} \rightarrow 2\text{H}_2 + \text{O}_2$</p> <p>(c) Electrolysis of water will not take place</p> <p style="text-align: center;">OR</p> <p>(a) Chemical Name – Sodium Carbonate decahydrate Common Name – Washing Soda Chemical Formula - $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$</p> <p>(b) $\text{NaCl} + \text{H}_2\text{O} + \text{CO}_2 + \text{NH}_3 \rightarrow \text{NH}_4\text{Cl} + \text{NaHCO}_3$</p> $2\text{NaHCO}_3 \xrightarrow{\text{Heat}} \text{Na}_2\text{CO}_3 + \text{H}_2\text{O} + \text{CO}_2$ $\text{Na}_2\text{CO}_3 + 10\text{H}_2\text{O} \rightarrow \text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ <p>(c) It helps in removing permanent hardness./ It forms insoluble Ca or Mg salts in the form of scum</p>	<p>1</p> <p>1</p> <p>1</p> <p>½ ×3</p> <p>1</p> <p>½</p>	<p>3</p> <p>3</p>
17.	<p>(a) Li ,K</p> <p>(b) Mg</p> <p>(c) C</p> <p>(d) K</p> <p>(e) S</p> <p>(f) Al</p>	<p>½</p> <p>½</p> <p>½</p> <p>½</p> <p>½</p> <p>½</p>	3
18.	<ul style="list-style-type: none"> • Trophic level - Each step or level of a food chain forms a trophic level • Grass → Insect → Frog → Snake/Hawk / Correct Diagram (any other) • Because it moves progressively through the various trophic levels and is no longer available to the previous level from producers to consumers. <p style="text-align: center;">OR</p> <p>(i) Aquatic</p> <p>(ii) Abiotic</p> <p>(iii) Air/Water/Soil/Temperature /Non-living</p> <p>(iv) Living organism/plants and animals</p> <p>(v) Definition – All the interacting organisms in an area together with the non living constituents of the environment form an ecosystem /interaction between biotic and abiotic components.</p>	<p>1</p> <p>1</p> <p>1</p> <p>½</p> <p>½</p> <p>½</p> <p>½</p> <p>1</p>	3
19.	<p>(a) Exchange of gases.</p> <p>(b) Because amount of oxygen dissolved in water is fairly low as compared to the air</p>	<p>1</p> <p>1</p>	

	(c) (i) Pyruvate (ii) Carbon dioxide	$\frac{1}{2}$ $\frac{1}{2}$	3
20.	(a) Because Tallness is the dominant trait (b) The recessive character is expressed in the F ₂ generation when two copies of the recessive trait are present together/(tt). (c) In the F ₂ progeny , the dominant character is also expressed along with the recessive character in ratio of 3:1 respectively.	1 1 1	3
21	(a) <ul style="list-style-type: none"> • Secretions from seminal vesicle. • 22+X and 22+Y (b) (i) Female-XX (ii) Male – XY	1 $\frac{1}{2} + \frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	3
22	(a)  (b)  (c)  (Note : Deduct $\frac{1}{2}$ marks overall if no arrows are shown)	1 1 1	3
23	(a) (i) Momentary deflection in the needle of the galvanometer to the left / right. (ii) Momentary deflection in the needle of the galvanometer but in the opposite direction. (iii) No deflection (b) Electromagnetic induction. (c) Motion of a magnet with respect to coil induces an electric current in the coil which lasts so long as the motion is taking place / change in magnetic field around a coil produces an induced current in it.	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ 1	3
24	(a) Myopia/Short sightedness (b) Concave/Diverging lens.	$\frac{1}{2}$ $\frac{1}{2}$	

	<p>(c)</p> <ul style="list-style-type: none"> Excessive curvature of eye lens elongation of eye ball <p>(d) $P(D) = \frac{1}{f(m)}$</p> $P(D) = \frac{1}{-2.5(m)} = \frac{10}{-25} = \frac{2}{-5} = -0.4D$ <p>(Deduct ½ mark if unit is not mentioned)</p> <p style="text-align: center;">OR</p> <p>(a) The Red colour is least scattered by fog or smoke, hence visible from a long distance.</p> <p>(b) Because in the absence of atmosphere there is no scattering of light.</p> <p>(c) Because of atmospheric refraction, the sun appears above the horizon even after actual sunset.</p>	<p>½+ ½</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	<p>3</p>
SECTION C			
25	<p>For ore X → Calcination/ Heating in limited supply of air/absence of air.</p> $ZnCO_3(s) \xrightarrow{\text{heat}} ZnO(s) + CO_2(g)$ <p>For Ore Y → Roasting/Heating in excess of air.</p> $2ZnS(s) + 3O_2(g) \xrightarrow{\text{heat}} 2ZnO(s) + 2SO_2(g)$ <p>The metal oxide is reduced by using suitable reducing agent such as carbon.</p> $ZnO(s) + C(s) \rightarrow Zn(s) + CO(g)$ <p>(Note – Any other example can be taken)</p> <p style="text-align: center;">OR</p> <p>(a) Figure</p>  <ul style="list-style-type: none"> Impure copper is made the anode and thin strip of pure copper is made the cathode. A solution of acidified copper sulphate is taken as electrolyte (Note : Labelled diagram is to be awarded full marks) <p>On passing the current the pure metal from the anode dissolves into the electrolyte and equivalent amount of pure metal is deposited on the cathode.</p> <p>(b)</p> <ul style="list-style-type: none"> By filling the gaps with molten iron formed in the reaction of 	<p>½</p> <p>1</p> <p>½</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>	

	<p>Fe_2O_3 with aluminum powder.</p> <ul style="list-style-type: none"> • Thermit process/reaction • $\text{Fe}_2\text{O}_3(\text{s}) + 2\text{Al}(\text{s}) \rightarrow 2\text{Fe}(\text{l}) + \text{Al}_2\text{O}_3(\text{s}) + \text{Heat}$ 	<p>$\frac{1}{2}$ $\frac{1}{2}$ 1</p>	5
26	<p>(a) When two or more organic compounds have same molecular formula but different structural formula, then the compounds are called isomers and this phenomenon is called isomerism</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Butane</p> </div> <div style="text-align: center;">  <p>Iso-Butane</p> </div> </div> <p>(b) Because 'X' is an unsaturated carbon compound</p> <p>(c) Oxidising agent.</p>	<p>1 1+1 1 1</p>	5
27	<p>(a) Because ventricles have to pump blood to various distant organs of the body</p> <p>(b) Because their energy requirement is low</p> <p>(c) In aquatic vertebrates the blood goes only once through the heart during one cycle while in terrestrial vertebrates it goes through the heart two times during each cycle.</p> <p>(d) Because transpirational pull is greater during day time.</p> <p>(e) To prevent the backflow of the blood /blood flows only in one direction</p>	<p>1 1 1 1 1</p>	5
28	<p>(a)</p> <ul style="list-style-type: none"> • A → Ureter • B → Seminal Vesicle • C → Urethra • D → Vas deferens <p>(b) Testosterone : Role</p> <ul style="list-style-type: none"> • Regulates the formation of sperms • Changes in appearance of boys at the time of puberty. <p>(c) Function of 'B'</p> <ul style="list-style-type: none"> • Providing nutrition and transportation to sperms. <p>Function of 'C'</p> <ul style="list-style-type: none"> • Serves as a common passage to both sperms and urine. <p style="text-align: center;">OR</p> <p>(a)</p> <ul style="list-style-type: none"> • Regeneration- the lost body part can be regenerated. • Budding – a complete small individual develops on the parent body during favourable conditions. • Spore Formation – Spores are covered with thick wall that helps to overcome unfavourable conditions. <p>(b) Buds produced in the notches along the leaf margins develop into new plants.</p> <p>(c) Advantages :</p> <ul style="list-style-type: none"> • Propagation of flowerless plants. • Genetically similar to the parent plant. • Plants raised by vegetative propagation bear flowers and fruits earlier than those produced from seeds. <p style="text-align: right;">(Any two)</p>	<p>$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ 1 $\frac{1}{2} + \frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2} + \frac{1}{2}$ $\frac{1}{2} + \frac{1}{2}$ $\frac{1}{2} + \frac{1}{2}$ 1 $\frac{1}{2} + \frac{1}{2}$</p>	5

<p>29</p>	<p>(a) $I_1 = \frac{P_1}{V}$</p> $I_1 = \frac{100 \text{ W}}{220 \text{ V}} = \frac{10}{22} \text{ A}$ $I_2 = \frac{P_2}{V} = \frac{10}{220} = \frac{1}{22} \text{ A}$ $I = I_1 + I_2$ $= \left(\frac{10}{22} + \frac{1}{22} \right) \text{ A} = \frac{11}{22} \text{ A} = 0.5 \text{ A}$ <p>(b) (i)</p>  <p>(ii) Net $R = R_1 + R_2 = 2 + 3 = 5 \Omega$</p> $I = \frac{V}{R_{net}} = \frac{5}{5} = 1 \text{ A}$ <p>\therefore Voltage across 3Ω resistor :</p> $\therefore V = 1 \times 3 = 3 \text{ V}$	<p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>1</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>1</p> <p>$\frac{1}{2}$</p> <p>5</p>	
<p>30</p>	<p>(a) .</p> 	<p>2</p>	

<p>(Note –Deduct ½ mark if arrows are not shown)</p> <p>(b) $n_{ga} = \frac{\text{Speed of light in air}}{\text{Speed of light in glass}} = \frac{3 \times 10^8}{2 \times 10^8} = \frac{3}{2} = 1.5$</p> <p>(c) $f(m) = \frac{1}{P(D)}$</p> $f = \frac{1}{P} = \frac{1}{-2.5D} = \frac{-10}{25D} = -0.4m$ <p>(Note –Deduct ½ marks if unit is not mentioned) OR</p> <p>(a) $f(m) = \frac{1}{P(D)}$</p> $f = \frac{1}{-2.5D} = \frac{-10}{25D} = -0.4m = -40cm$ <p>$f = -40\text{ cm}$ $v = -10\text{ cm}$ $u = ?$</p> $\frac{1}{v} - \frac{1}{u} = \frac{1}{f}$ $\frac{1}{-10\text{ cm}} - \frac{1}{u} = \frac{1}{-40\text{ cm}}$ $-\frac{1}{u} = \frac{1}{-40} + \frac{1}{10}$ $= \frac{-1 + 4}{40} = \frac{3}{40}$ <p>$\therefore u = -\frac{40}{3} = -13.3\text{ cm}$</p> <p>(b) Since the power is –ve , the lens used is concave / diverging</p>  <p>OA = v = -10cm ; OB = u = -13.3 cm ; OF = f = -40cm</p>	<p>½, ½, ½</p> <p>½</p> <p>½ + ½</p> <p>½</p> <p>1</p> <p>½</p> <p>½</p> <p>1</p> <p>½</p> <p>1</p>	<p>5</p>
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