

THE ASIAN SCHOOL, DEHRADUN

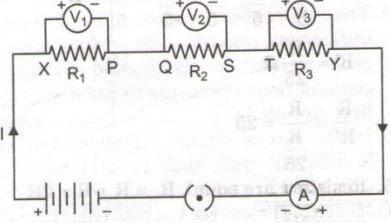
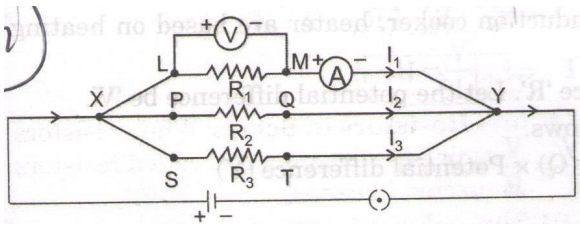
Test Paper Session 2017-18

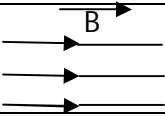
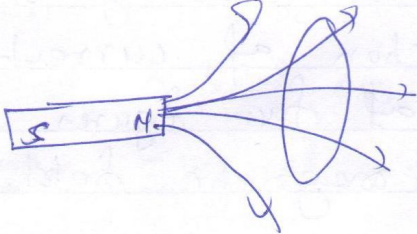
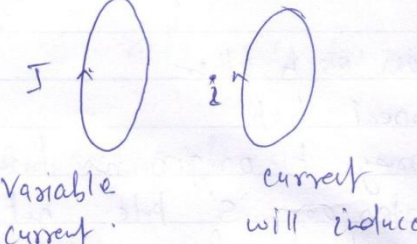
CLASS 10 SUBJECT Physics Chapter-1 Electricity

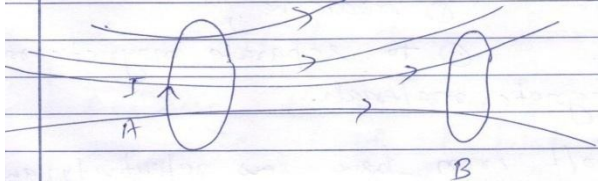
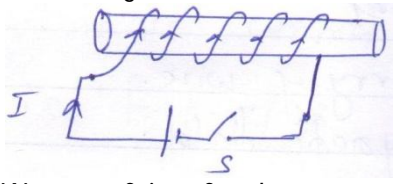
Ans1	It is always connected in series.	1
Ans2	Electric energy is not completely converted into mechanical energy a part of it is converted into heat energy which makes the electric appliances hot.	1
Ans3	Ohm x m	1
Ans4	a) High resistivity and b) High Melting Point	1
Ans5	For series : Resistors are equal , $R_s = R + 2R$ $H_s = \frac{V^2}{2R}$ For parallel : $\frac{1}{R_p} = \frac{1}{R} + \frac{1}{R} = \frac{2}{R}$, $R_p = R/2$, $H_p = \frac{V^2}{R/2}$ $\frac{H_s}{H_p} = \frac{V^2}{2R} \times \frac{R}{2V^2} = \frac{1}{4}$	1
Ans6	Direct current.	1
Ans7	The cord of electric heater has copper or Aluminum wire which lower resistance and high conductance, therefore very less heat energy is given out. Heating element is made up of alloy which has high resistance and lot of heat is produced, a little of light energy makes it to glow at high temperatures.	1
Ans8	In domestic circuit, parallel combination is used because total resistance becomes less. Secondly, if one circuit breaks, other keeps on working.	1
Ans9	Battery or Cell	1
Ans10	a) High resistivity b) They do not get oxidized or burnt, even at high temperature	1
Ans11	a) Nature of material, b) Length c) Area of Cross section d) Temperature	2
Ans12	'Y' has more resistance because resistance is directly proportional to the length of the wire.	2
Ans13	$R_1 = \rho \times L/A$ $20 = \rho \times L/A$ $R_2 = \rho \times 2L/A/2$ $\frac{R_2}{R_1} = 4$ so $R_2 = 4R_1 = 4 \times 20 = 80\Omega$	2
Ans14	$R_1 = \rho \times L/A$ $R_2 = \rho \times 2L/ A/2 = 4\rho \times L/A$ $R_3 = \rho \times L2/ 2A = 1/4 \times \rho \times L/A$, so $R_2 > R_1 > R_3$.	2
Ans15	$R = \rho \times L/A$ $L = \frac{10 \times 22 \times 10^{-8}}{50 \times 10^{-8} \times 7} = 0.628m = 62.8cm$.	2
Ans16	$R_s = R_1 + R_2 = 10 + 20 = 30 \Omega$ $I = V/R = 3/30 = 0.1A$	2
Ans17	a) In order to get 4 Ω , resistance 2 Ω should be connected in series with parallel combination of 3 Ω and 6 Ω . b) IN order to get 1 Ω , all the three resistors connected to parallel.	2
Ans18	i) Disadvantage : a) We have observed in series circuit, the current is constant throughout the electric circuit. Thus, it is not practical to connect an electric bulb and electrical heater in series, because they need current of widely different values to operate properly. Total resistance increases. b) Another disadvantage of series circuit is that when one component fails, the circuit is broken and none of the components work. You must have seen in fairy lights used in diwali, if one bulb fuses, the circuit is broken, none of the small bulbs work or light up. ii) Two resistance of 2 Ω are in series : $R_s = R_1 + R_2 = 2+2 = 4 \Omega$ The third resistance of 4 Ω is parallel to R_s .	2

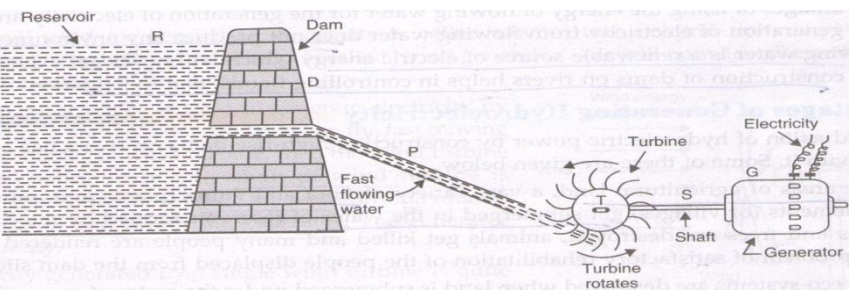
	$\frac{1}{R_p} = \frac{1}{R_s} + \frac{1}{R_3} = \frac{1}{4} + \frac{1}{4} = \frac{1}{2} = R_p = 2 \Omega$	
Ans19	$E = P \times t = 1000W \times 8 \times 30 = 240000 \text{ W hr.} = 240 \text{ k W hr.}$ Cost = $240 \times 4.70 = \text{Rs } 1128.$	2
Ans20	When 'N' resistors each of resistance 'R' are connected in parallel, then $R_p = R/N$ Current drawn from the cell (I) $= \frac{V}{R_p} = V \times N / R = 5 \text{ A} = 220 \times N / 176, N = 4$	2
Ans21	$I = V/R = 220/24 = 9.16 \text{ A}$ $R_s = R_1 + R_2 = 24 + 24 = 48 \Omega$ $I = 220/48 = 4.58 \Omega$ IN parallel : $1/R_p = 1/12$ $R_p = 12 \Omega$ $I = 220/12 = 18.3 \text{ A}$	3
Ans22	$I = \frac{NXP}{V} = \frac{2/1.1 \times 1000}{220} = \frac{2200}{220} = 10 \text{ A}$	3
Ans23	a) The current whose direction gets reversed after very half cycle is called an alternating current or A.C. . There is no change in the direction of D.C. b) The most important advantage of using A.C over DC. Is that in the A.C. mode electric power can be transmitted over long distances with less loss of power.	3
Ans24	Here $P = 2 \text{ KW} = 2000 \text{ W}, V = 220 \text{ volt}$ $P = VI$, the current $I = P/V = 9.09 \text{ A}.$ As the current is 9.09 A ,below the rating of fuse, the fuse will withstand i.e. it will not blow off when A.C . is on.	3
Ans25	a) Resistivity is a characteristic property of a material that does not depend upon the dimensions of the material whereas resistance depends upon the dimensions of the material. b) Resistivity does not depend on : i) Length of conductor ii) Area of cross section Resistivity depends on : i) Material of conductor ii) Temperature of conductor c) If we save electricity, it can be used by those villages which do not have electricity. It can be used in industries, agriculture and other useful purposes. It improves national economy because high speed trains, industries, development in village depends upon electricity.	3
Ans26	I) Connect the device in the circuit with the battery. II) Close the circuit and notice the deflection of pointer. III) If it is opposite direction below zero then interchange the terminals.	3
Ans27	It can be seen that plot of V against I is a straight line. Thus, it can be concluded $V \propto I$. So $V/I = 1.6/0.6 = 2.67.$	3
Ans28	Current is the rate of flow of charge, $I = Q/t$. Ampere is the S.I unit of current when 1C of charge is passing through a conductor for 1 second. The direction of current is from A to B. It moves in opposite direction to the flow of electrons i.e. current flows from +ve terminal to -ve terminal. $I = 1 \text{ ampere}$ $T = 1 \text{ second}$ $Q = I \times t$ $= 1 \times 1 = 1 \text{ C}$ Number of electrons $= 1/1.602 \times 10^{-19} \text{ C}$ $= 6.24 \times 10^{18} \text{ electrons.}$	3

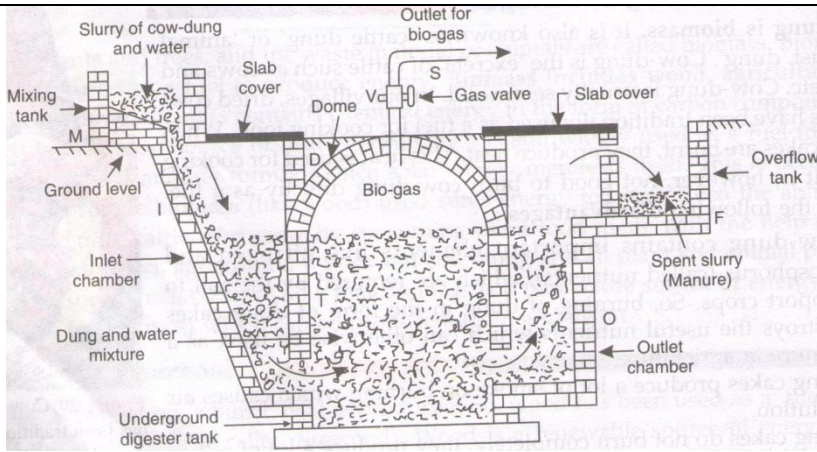
Ans29	$R = \rho L/A$ $L = RxA/\rho = 5 \times 22 \times 10^{-8} / 50 \times 10^{-8} \times 7 = 0.314 \text{ m} = 31.4 \text{ cm}$	3
Ans30	<p>i) Resistance across parallel combination.</p> $\frac{1}{R_{P1}} = \frac{1}{5} + \frac{1}{20}$ $\frac{1}{R_{P1}} = 4 \Omega$ $\frac{1}{R_{P2}} = \frac{1}{15} + \frac{1}{20} + \frac{1}{10}$ $R_{P2} = \frac{60}{30} \Omega$ $R_{P1} + R_{P2} = \frac{112}{30} \Omega$ <p>ii) $V = 6 \text{ V}$ $I = \frac{V}{R} = 0.69 \text{ A}$.</p>	3
Ans31	<p>a) The rate of doing work is called power. The rate of consumption of energy, eg. 100 watt bulb has power 100 watt or 100 Js^{-1}. SI unit of power is Watt (W).</p> <p>b)</p> <p>i) Directly proportional to the square of current for a given resistor.</p> <p>ii) Directly proportional to the resistance for a given resistor.</p> <p>iii) Directly proportional to the time for which current flows through a resistor.</p>	5
Ans32	<p>a) i) The electric laundry iron, electric toaster, oven, electric kettle, electric heater, all are based on heating effect of current.</p> <p>ii) Undesirable effects : The unavoidable heating can increase the temperature of components and alter their properties.</p> <p>b) $R = \frac{Pl}{A}$ $R = \frac{P3l}{A/3} = 9R$</p>	5
Ans33	<p>Both have same resistivity because resistivity</p> $\frac{1}{R} = \frac{1}{5} + \frac{1}{10} + \frac{1}{30} = 1/3$ <p>So $R = 3$ So $I = V/R = 2 \text{ A}$ $I_1 = 1.2 \text{ A}$ $I_2 = 0.6 \text{ A}$ $I_3 = 0.2 \text{ A}$</p>	5
Ans34	$P = VI$ So $I = \frac{20000}{200} = 9.09 \text{ A}$ So fuse will not with stand.	5
Ans35	<p>a) To increase the resistance and current decreases.</p> <p>b) It is because Cu and Al have low resistivity and allows current to flow.</p>	5
Ans36	<p>a) Resistance : It is the ratio of voltage over current at a particular temperature and Ω SI unit. Resistivity : It is the resistance of a wire of length l m and area of cross section 1 m^2 and SI unit is $\Omega \times \text{m}$</p> <p>b) $R = 6/5 \times 25/(5/6)^2$ $= 43.20 \text{ ohms}$</p>	5
Ans37	<p>a) When 1 A current is passed for 1 second, the charge is equal to 1 coulomb.</p> <p>b) $Q = I \times t$ $Q = 240 \text{ C}$</p>	5
Ans28	<p>The rate of flow of charge is electric current. Its SI unit is ampere. When 1 coulomb of charge flowing through one second then the current will be 1 ampere.</p> $Q = ne$ so $n = q/e = 6.25 \times 10^{18}$	5

<p>Ans39</p>	<p>For series $V = V_1 + V_2 + V_3$ The current through each resistor and all the three resistors is I.</p> <p>$V = IR$ $IR = IR_1 + IR_2 + IR_3$ $R_s = R_1 + R_2 + R_3$</p> <p>For parallel $I = I_1 + I_2 + I_3$ $I = \frac{V}{R_p}$ $I = I_1 + I_2 + I_3$ $\frac{V}{R_p} = \frac{V}{R_1} + \frac{V}{R_2} + \frac{V}{R_3}$ $\frac{1}{R_p} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$</p>  	<p>5</p>
<p>Ans40</p>	<p>a) $W = QV$ $P = \frac{QV}{t}$ $Q = I \times t$ $P = V \times I \times t / t = V \times I$ $H = V \times I \times t$</p> <p>b) $I = \frac{V}{R}$ so $V = IR$ $H = I^2 R t$</p>	<p>5</p>

Ans1	a) Magnetic field lines from closed loop. b) Field lines never cross each other.	1
Ans2	Due to magnetic field of bar magnet which apply force on compass needle.	1
Ans3	When we stretch, thumb of right hand in the direction of current then curling direction of four fingers will give direction of magnetic field.	1
Ans4	Circular	1
Ans5	MCB	1
Ans6	a) Never cross each other b) Make closed loop c) Outside magnet originates from 'N' pole and terminates on 'S' pole. But inside the magnet it is from 'S' to 'N'.	1
Ans7	Because there will be two direction of magnetic field at point of intersection.	1
Ans 8	 Uniform mag. Field is represented by equidistant parallel lines.	2
Ans9	When current carrying wire is placed in external magnetic field then it will experience a force which rotates the coil.	2
Ans10	To change the direction of current in the wire we use split- ring.	2
Ans11	a) When we move a bar magnet around the wire.  b) When variable current carrying wire placed in front of a wire. 	2
Ans12	When magnetic flux change in a coil then current flows in it. This is Faraday's law of electromagnetic induction. And rate of change of flux is directly proportioned to magnitude of induced emf. In the coil.	2
Ans13	a) When the +ve and -ve terminal of a battery is connected with a conducting wire then short circuit occur and in this case large amount of current will flow. b) When large no. of loads is connected at the same point then large current flows.	2
Ans14	a) Washing machine. b) In Pump Etc.	2
Ans15	a) Bar magnet b) Current carrying wire c) Earth magnetic field.	2
Ans 16	a) We use fuse wire in the circuit. b) We should not connect large no. of load of a single point.	3

Ans 17	 <p>Yes, in coil 'B' current will induce because of change in magnetic flux in the coil 'B'. this is Faraday's law of electromagnetic induction.</p>	3
Ans 18	<p>a) So that rotational effect of magnetic force will be in the same direction. So that speed of motor will increase. If direction of current will not change then speed of motor will not increase.</p> <p>b) Split – Ring.</p>	3
Ans 19	<p>When a current is passed through a coil rapped on soft iron then it become magnet. This magnet is electromagnet.</p>  <p>We use soft iron for electromagnet.</p>	3
Ans 20	<p>a) Electromagnets are used in: Medicine, To separate magnetic materials from non-magnetic materials.</p> <p>b) Because soft iron have low retentively and co-ercivity due to which when current in the circuit is zero its magnetism become zero, but in steel it has high retentively due to which after current is switched off still magnetism is left in steel.</p>	5
Ans21	<p>Because of earth magnetic field. Earth also behaves as a magnet and north pole of earth magnet will attract the south pole and south pole of earth magnet will attract north pole.</p>	5
Ans22	<p>a) The coil is wound on a soft iron core.</p> <p>b) The coil contains a large no. of turns of the insulated copper wire.</p> <p>c) A powerful electromagnet is used in place of permanent magnet.</p>	5
Ans23	<p>When we supply dc current to a large distance then loss of energy will be large in comparison to ac current.</p>	5
Ans24	<p>Let no of bulbs = x That is : lower of 1 bulb = 100.w That is : Total power = 100x Now, V = 220 I = 5 That is P = IV 100x = 220x5 That $x = \frac{220 \times 5}{100} = 11$</p>	5
Ans25	<p>a) We should not connect too many appliance are connected to a single socket.</p> <p>b) Wiring should be protected by fuses.</p>	5

Ans1	Due to high calorific value and It does not produce any poisonous gases on combustion.	1						
Ans2	Main Constituent of natural gas is methane and of Petroleum gas is butane.	1						
Ans3	CNG can be used in Place of gasoline (Petrol), Diesel and Propane.	1						
Ans4	Diesel	1						
Ans5	It should have high Calorific value and It should be cheap and easily available.	2						
Ans6	Advantage: Renewable energy, Economy Friendly energy. Disadvantage : High investment and Seasonal energy	2						
Ans7	<table border="1" style="width: 100%;"> <thead> <tr> <th style="width: 50%;">Thermal Power Plant</th> <th style="width: 50%;">Hydro Power Plant</th> </tr> </thead> <tbody> <tr> <td>Thermal Power is generated by heating fossil fuels such as coal and petroleum</td> <td>Hydro Power Plant is generated by using the force of running water.</td> </tr> <tr> <td>It is non- renewable source of energy</td> <td>It is renewable source of energy</td> </tr> </tbody> </table>	Thermal Power Plant	Hydro Power Plant	Thermal Power is generated by heating fossil fuels such as coal and petroleum	Hydro Power Plant is generated by using the force of running water.	It is non- renewable source of energy	It is renewable source of energy	2
Thermal Power Plant	Hydro Power Plant							
Thermal Power is generated by heating fossil fuels such as coal and petroleum	Hydro Power Plant is generated by using the force of running water.							
It is non- renewable source of energy	It is renewable source of energy							
Ans8	Biogas is produced by the anaerobic degradation of animal waste like cow dung and plant waste. It is a mixture of methane, carbon dioxide and hydrogen.	3						
Ans9	Geothermal energy is the heat energy from hot rocks present inside the earth. The hot rocks present below the surface of earth heat the underground water and turn into steam. The steam turns the turbine of a generator to produce electricity.	3						
Ans10	<p>Nuclear fission is the process in which the heavy nucleus splits up into smaller nuclei when bombarded with neutrons.</p> ${}_{92}^{235}\text{U} + {}_0^1\text{n} \xrightarrow{\text{Fission}} {}_{56}^{139}\text{Ba} + {}_{36}^{94}\text{Kr} + 3{}_0^1\text{n} + \text{Tremendous amount of energy}$ <p>Nuclear fusion is the process in which two nuclei of light elements combine to form a heavy nucleus.</p> ${}_1^2\text{H} + {}_1^2\text{H} \xrightarrow{\text{Fusion}} {}_2^3\text{He} + {}_0^1\text{n} + \text{Tremendous amount of energy}$ <p>Two deuterium atoms (Light atoms) One helium atom (Heavy atom) Neutron</p>	3						
Ans 11	<ul style="list-style-type: none"> a) Switch off lights, fans and electrical appliances when not needed. b) Use energy efficient appliances like CFL. c) Solar cookers should be used to cook food. 	3						
Ans 12	<p>Hydroelectricity is the electricity generated with the help of water. Hydro power plant converts potential energy of stored water in the reservoir into electric energy. Turbine inside a hydroelectric power station rotates by the force of flowing water and converts mechanical energy into electric energy.</p> 	5						
Ans 13	Biogas is produced by the anaerobic degradation of animal waste like cow dung and plant waste. It is a mixture of methane, carbon dioxide and hydrogen.	5						



Ans14

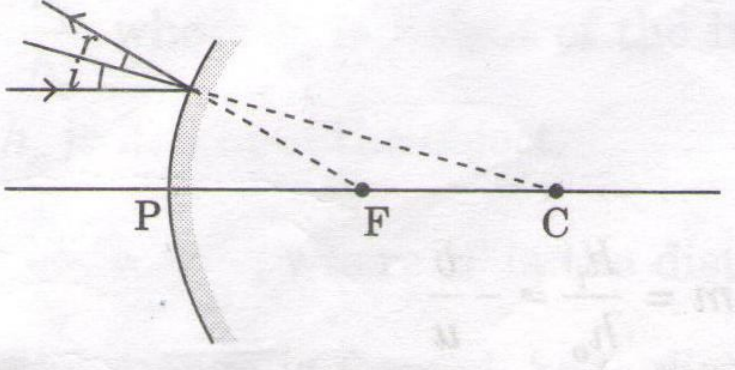
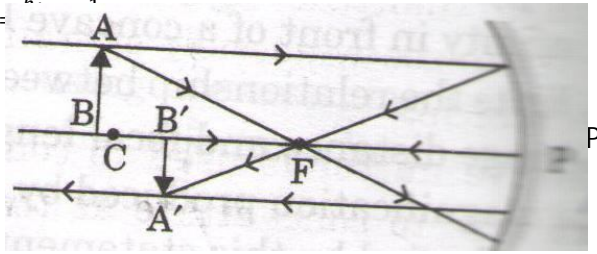
- a) * Combustion of fossil fuels is producing acid rain and damaging plants.
 * Burning of fossil fuels is increasing the amount of greenhouse gas carbon dioxide.
 * Nuclear power plants are increasing radioactivity in the environment.
- b) Coal : Coal cannot replenish within a short period of time.
 Wood : Forests are decreasing at very fast rate due to deforestation.

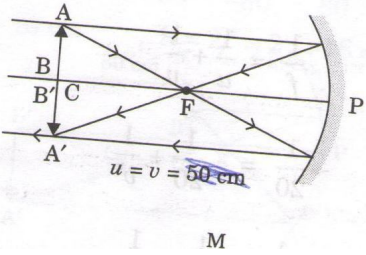
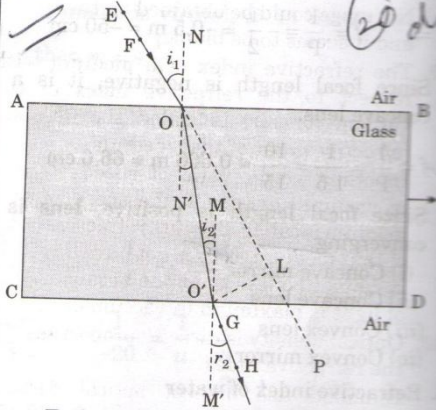
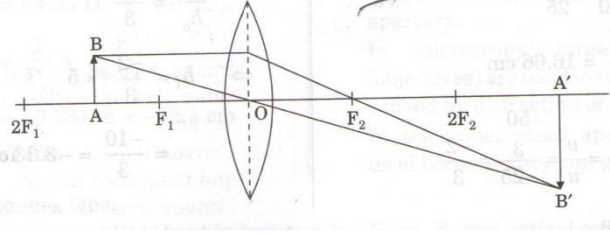
5

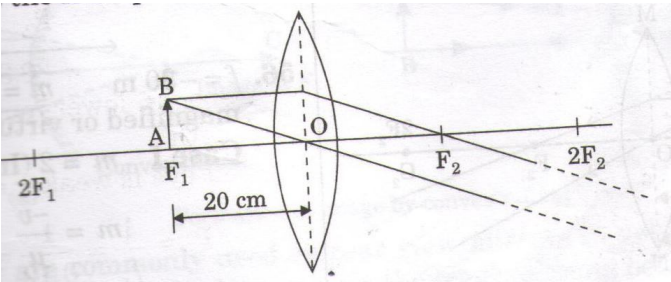
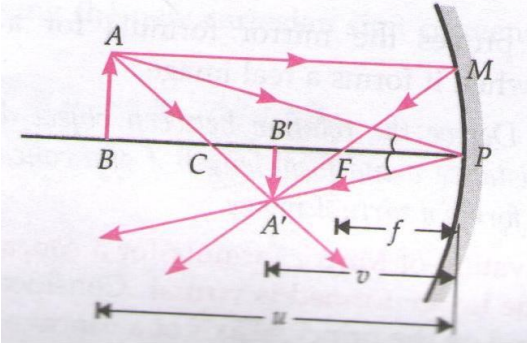
Ans 15

- a) * Capital investment is very high.
 * Conversion efficiency is very low.
 * Uneconomical for small plants.
- b) The K.E of wind was traditionally used to do mechanical work. Nowadays, we can generate electricity using windmills.
 The P.E of stored water at a height and K.E of flowing water used to do Mechanical Energy.
 Nowadays, hydroelectric power stations are built to make use of energy of water to generate electricity.

5

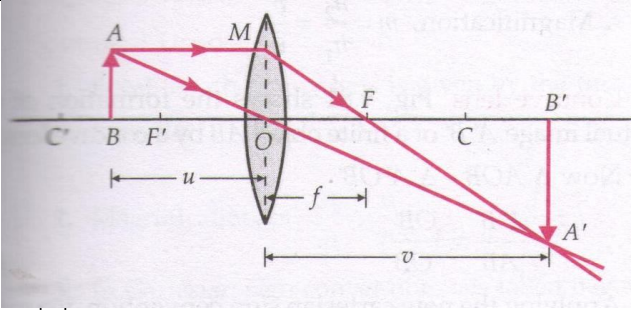
Ans1	It is the point on the principal axis where parallel rays meet after reflection.	1
Ans2	Magnification is equal to 1, because the size of the image is equal to the size of the object.	1
Ans3	It is because $\angle i = 0$, therefore $\angle r = 0$. Therefore the ray of light retraces its path.	1
Ans4	$\angle i + \angle r = 60^\circ$ so $\angle i = \angle r$, so $2\angle i = 60^\circ$, so $\angle i = 30^\circ$	1
Ans5	The image will be real and inverted. Size of image is enlarged, so object must be placed between F and 2F, i.e. C.	1
Ans6	The focal length of lens is 1 m, its power is one dioptre. ($1D = 1m^{-1}$)	1
Ans7	The speed of blue light is same as that of light i.e. $3 \times 10^8 \text{ms}^{-1}$.	1
Ans8	The convex lens of focal length 5 cm will be suitable to read small letters of dictionary. It will form virtual, erect and magnified images.	1
Ans9	Both are concave in nature.	1
Ans10	The focal length will not change if 'R' is not changed.	1
Ans11	$h_i = 3h_o$, $u = -10\text{cm}$ so $m = \frac{h_i}{h_o} = -\frac{v}{u} = 3 \Rightarrow \frac{-v}{-10} = 3 \Rightarrow v = -30\text{ cm}$, so the image is formed at a distance 30 cm from the mirror on the same side.	2
Ans12		2
Ans13	a) Since the magnification is $-1/5$, so image formed is smaller than object, the image is real and mirror concave mirror used. b) $m = \frac{h_i}{h_o} = -\frac{v}{u}$  The object will be placed beyond 'C' because image formed is smaller.	2
Ans14	a) Concave mirror is used because light from the bulb is placed at the focus gets reflected and a powerful parallel beam of light is obtained which illuminates the road. b) Convex mirror, because it gives virtual and erect image and size of the image is smaller than the object. It enables the driver to see wide view of traffic behind the vehicle.	2
Ans15	$m = \frac{h_i}{h_o} = -\frac{v}{u}$, $v = 2u$ $f = -30\text{ cm}$ in concave mirror. $\frac{1}{f} = \frac{1}{u} + \frac{1}{v}$ $\frac{-1}{30} = \frac{1}{u} + \frac{1}{2u} = u = -45\text{cm}$. The distance of object from the mirror should be at 45 cm from the mirror.	2

Ans16	<p>a) It is concave mirror : $m = -\frac{-v}{u} = -1$ $= v = u = -50$</p>		2
Ans17	<p>$m = 1, v = -40\text{cm}$ $m = \frac{v}{u}$ $u = \frac{-v}{m} = \frac{-40}{1} = -40\text{ cm}$</p>		2
Ans18	<p>Refractive index of water $= \frac{\text{Speed of light in air}}{\text{Speed of light in water}}$ $\frac{4}{3} = \frac{3 \times 10^8}{\text{Speed of light in water}}$ Speed of light in water $= 9/4 \times 10^8 = 2.25 \times 10^8 \text{ ms}^{-1}$</p>		2
Ans19	<p>i) In vacuum, red light has same speed as blue light. ii) In glass, red light had higher speed than the blue light, because refractive index of red light is smaller than blue light and that is why red light is least refracted.</p>		2
Ans20			2
Q21	<p>The size of image will be larger than size of the object. It will be formed beyond $2F_2$.</p>		3
Ans22	<p>$\frac{1}{f} = \frac{1}{60} - \frac{1}{-30} = \frac{3}{60}$ $f = 20\text{ cm}$ $m = \frac{hi}{ho} = \frac{v}{u} = -2$ So $hi = -4.8\text{cm}$. The image is inverted, real and twice the size of object. The lens is convex lens.</p>		3
Ans23	<p>$1/10 = 1/v - 1/-25$ $v = 50/3$ $m = -2/3$ $hi = -10/3$</p>		3

Ans24	$P_1 = 1/f_1 = 8.33D$ $f = 0.12m$ $P_1 + P_2 = 4$ $P_2 = -4.33D$ $f_2 = 1/4.33$ $f_2 = 23.1cm$	3
Ans25	<p>a) The power of lens is the ability of lens to converge or diverge the light rays falling on it. It is equal to the reciprocal of the focal length of the lens.</p> <p>b) $f = 1/P = 50\text{ cm}$</p> <p>c) The lens is convex lens. This lens will converge a beam of light passing through it.</p>	3
Ans26	<p>Size of the object, $u = 0.5\text{ cm}$ Focal length $f = 20\text{ cm}$, $u = 20\text{ cm}$ Therefore the object is at the focal point, F_1 as shown is the diagram.</p>  <p>The image is formed at infinity. It is real, inverted and infinitely large.</p>	3
Ans27	<p>Optical density is directly proportional to the refractive index. Diamond has highest optical density because of highest refractive index (2.42). Air has lowest optical density, because of lowest refractive index (1.0003)</p>	3
Ans28	<p>The refractive index of a medium with respect to the refractive index of the vacuum is called the absolute refractive index of that medium.</p>	3
Ans29	$n_{dg} = 1.6$, $n_g = 1.5$ $1.6 = n_d / 1.5$ $n_d = 2.4$ so the absolute refractive index of diamond is 2.4	3
Ans30	$f = \frac{1}{P} = \frac{1}{1.5} = \frac{10}{15} = 0.666m = 66.6cm$ Since focal length is positive, lens is converging.	3
Ans31	 $\Delta A'B'C \sim \Delta ABC$ $\frac{A'B'}{AB} = \frac{CB'}{BC} = \frac{-R+v}{-u+R}$ $\Delta A'B'P \sim \Delta ABP$ $= \frac{A'B'}{AB} = \frac{PB'}{BP} = \frac{-v}{-u} = \frac{v}{u}$ $\frac{-R+v}{-u+R} = \frac{v}{u} = vR + uR = 2uv$	3

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

Ans 32



$\Delta A'B'O \sim \Delta ABO$

$$\frac{A'B'}{AB} = \frac{OB'}{BO}$$

Also $\Delta A'B'F \sim \Delta MOF$

$$\frac{A'B'}{MO} = \frac{FB'}{OF}$$

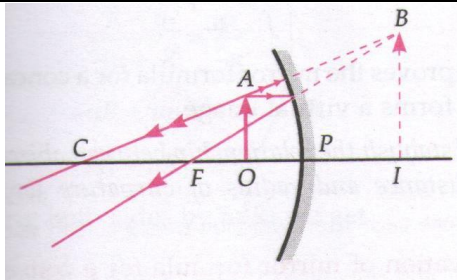
$$= \frac{v}{-u} = \frac{v-f}{f}$$

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

3

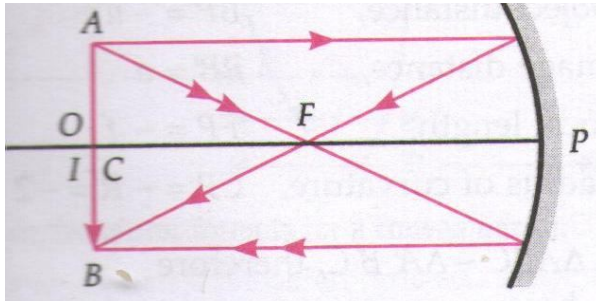
Ans33

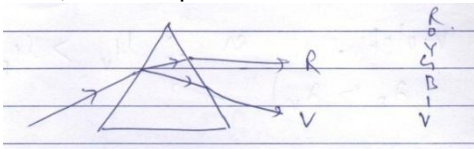
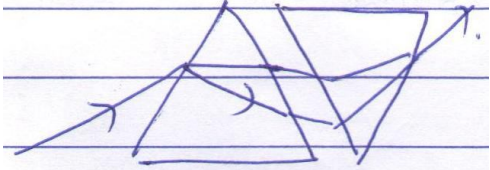
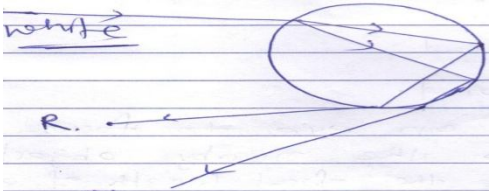
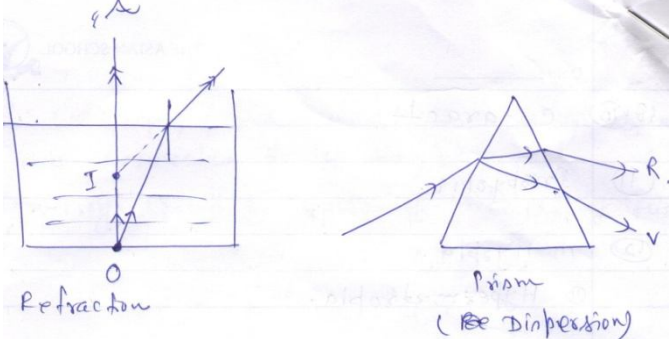
a)

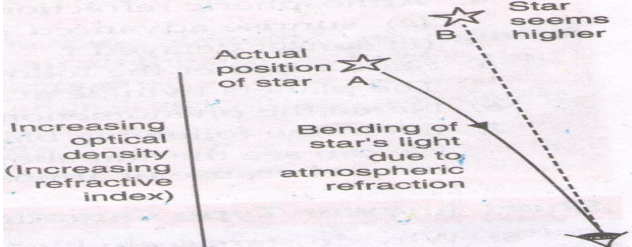


3

b)



1	a) Cornea b) Retina	1
2	Retina	1
3	Retina	1
4	Rods and Cones	1
5	From ∞ to about 25 centimeters.	1
6	By changing the focal length of eye lens with the help of ciliary muscles.	2
7	The iris controls the amount of light entering the eyes.	2
8	Because adjustment of the size of the pupil takes some time.	2
9	Presbyopia is that defect of vision due to which an old person cannot see the nearby objects clearly due to loss of power of accommodation of the eye.	2
	Cataract	2
10	Presbyopia	2
11	a) Myopia b) Hypermatropia	2
12	a) It will split into seven column  b) Again it will convert into single white light. 	3
13	Splitting of light into its constituent colour is known as dispersion. 	3
14		3
15	Violet as ($\lambda_R > \lambda_V$) $\therefore \mu_V > \mu_R$ $\therefore \delta_V > \delta_R$	3
16	a) The refraction of light caused by the earth's atmosphere is called atmospheric refraction. b) Due to atmospheric refraction.	3
17	Due to atmospheric refraction, the stars seem to be higher in the sky than they actually are. : Light from a star is refracted as it leaves space and enters the earth's atmosphere. Air higher up in the sky is rarer but that nearer the earth's surface is denser.	5

	 <p>The diagram illustrates atmospheric refraction. It shows a star at its 'Actual position of star' (A). Light rays from the star bend towards the observer as they pass through the atmosphere. This bending is labeled 'Bending of star's light due to atmospheric refraction'. An arrow on the left indicates 'Increasing optical density (Increasing refractive index)' as the light travels downwards. The observer sees the star at a higher position, labeled 'Star seems higher' (B).</p>	
18	<ul style="list-style-type: none"> a) Blue light b) Red 	5
19	Due to scattering.	5
20	<ul style="list-style-type: none"> a) Def : of far point Def : of near point b) The ability of an eye of focus the distant objects as well as the nearby objects on the retina by changing the focal length of its lens is called accommodation. 	5
21	Due to lots of strain on the eye and image will not form on retina so it will appear bullured.	5