Ministry of Education
Science Branch

34 E II

Grade 11

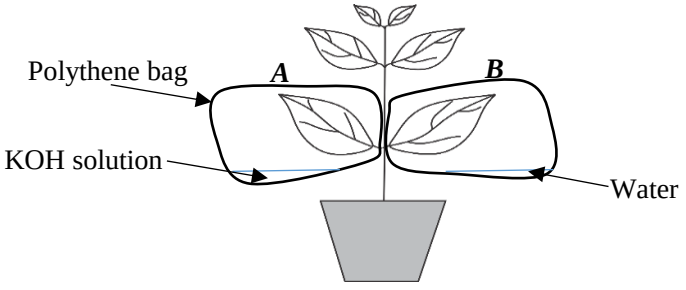
G.C.E (O/L) Assessment Test-2024(2025)

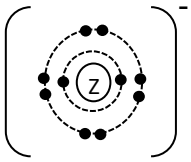
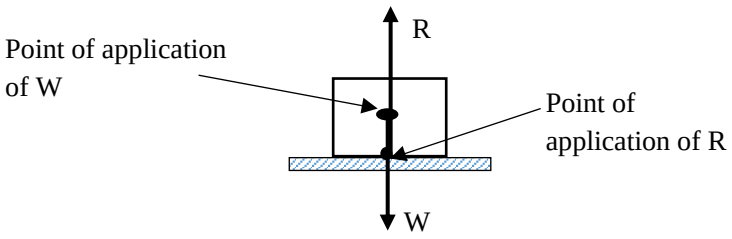
Science

Answer sheet

Part I

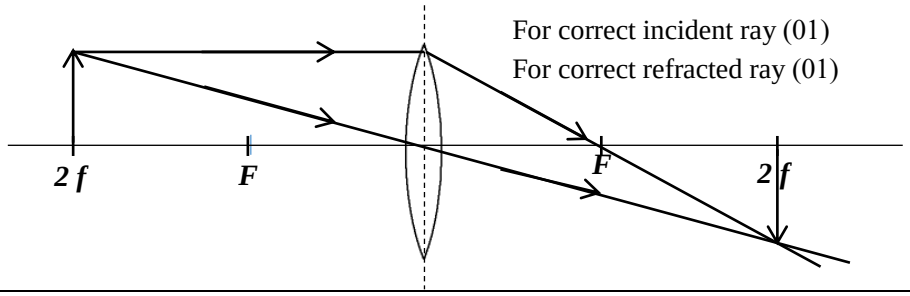
Question No	Answer No	Question No	Answer No	Question No	Answer No	Question No	Answer No
1.	3	11.	3	21.	2	31.	3
2.	2	12.	3	22.	1	32.	2
3.	3	13.	3	23.	1	33.	1
4.	4	14.	1	24.	2	34.	4
5.	1	15.	1	25.	4	35.	1
6.	1	16.	3	26.	4	36.	3
7.	2	17.	1	27.	1	37.	1
8.	1	18.	1	28.	2	38.	4
9.	2	19.	4	29.	2	39.	3
10.	4	20.	3	30.	4	40.	1

1.	(A)	(i)	(a)	Nitrate (NO_3^-)/ Phosphate (PO_4^-)	01
			(b)	Photochemical Smog / Photochemical Haze	01
			(c)	Acid rain	01
			(d)	NO_2 /SO_2	01
		(ii)		Using solar panel for light posts.	01
		(iii)		Walking pathway.	01
		(iv)		Factories operating more during daytime/ Increased vehicle traffic during daytime.	01
		(v)		Improvement of public transport system.	01
	(B)	(i)		CO_2	01
		(ii)	(a)	P/ Q or Power generation / Transportation.	01
			(b)	Fossil fuel combustion / Coal combustion (or similar answers).	01
		(iii)		CH_4	01
		(iv)		F(Fluorine)/Cl (Chlorine)/ Give marks even if the answer is hydrogen.	01
		(v)		Use of renewable energy sources.	01
		(vi)		Global warming.	01
				Total	**15**
2.	(A)	(i)		NaOH/Sodium Hydroxide	01
		(ii)		In the figure, one leaf covered with polythene bag should be filled with KOH solution and the other leaf covered with polythene bag should be filled with water. 	03

		(iii)		To remove the deposited starch from the leaves	02
		(iii)	(a)	Iodine/ Iodine solution	01
			(b)	***A***- Yellowish brown/No color change ***B***- changes in to Dark blue	01
	(B)	(i)	(a)	Plantae	01
			(b)	Non-flowering plant	01
			(c)	Monocotyledonous plant	01
		(ii)		***p***- shoe flower/Hibiscus ***q***- Rice ***r***- Pinus ***s***- Pogonatum	04
				Total	**15**
3.	(A)	(i)	(a)	X	01
			(b)	Z	01
			(c)	X	01
			(d)	Y	01
		(ii)	(a)	V	01
			(b)	2,4	01
			(c)	YZ_3	01
			(d)	Covalent bond	01
		(iii)	(a)	(+)	01
			(b)		01
	(B)	(i)	(a)	A and B	01
			(b)	B and C	01
			(c)	B and D	01
		(ii)		A	01
		(iii)		Immersing in a water bath maintained at a specific temperature (or similar ideas).	01
				Total	**15**
4.	(A)	(i)	(a)	A and B	01
			(b)	B and C	01
		(ii)		First law	01
		(iii)		Dynamic frictional force.	01
		(iv)		F=ma F = 2 kg x 2 m s^{-2} F = 4 N	02
		(v)			02
	(B)	(i)		Moment of force = Force × Perpendicular distance from the pivot point to the line of action of the force	01
		(ii)		Moment of force = 10 kg x 10 m s^{-2} x 1 m = 100 N m	02
		(iii)	(a)	Will increase	01
			(b)	Will decrease	01
		(iv)		E = mgh = 10 kg x 10 m s^{-2} x 1 m = 100 J	02

Part - B

5	(***A***)	(i)		***A***- Afferent arteriole (01) ***B***- Efferent arteriole (01) ***C***- Glomerulus (01)	03
		(ii)		The diameter of blood vessel ***A*** is greater than the diameter of blood vessel ***B***.	02
		(iii)		Ultrafiltration	01
		(iv)		The concentration of glucose/ amino acids/ urea/ uric acid/ salts in the blood leaving through ***A*** is lower than the blood entering through ***B***.	02
		(v)		Epithelial tissue	01
		(vi)		Glucose	01
	(B)	(i)		Tissue culture	01
		(ii)		Advantage: (For correct answers like) • The parent plant can produce daughter plants with all the same characteristics. • Can produce a large number of plants at once. • Can produce a large number of plants in a short period of time. • Being able to breed a large number of healthy plants in a small amount of space. Disadvantage: (For correct answers like) • Inability to do tissue culture under normal conditions. • If weak characters are present, they are passed on to the next generation.	02
		(iii)		Since the food produced in the plant branch is not transported to other parts of the plant, the food is stored in the fruit.	02
	(C)	(i)		RR and rr	01
		(ii)		<table><tr><td></td><td>**R**</td><td>**R**</td></tr><tr><td>**r**</td><td>Rr</td><td>Rr</td></tr><tr><td>**r**</td><td>Rr</td><td>Rr</td></tr></table>	02
		(iii)		Genotype ratio - RR : Rr : rr = 1: 2 : 1 Phenotype ratio - Round seed : Shrunk seed = 3 : 1	02
				Total Marks	**20**
6	***(A)***	(i)		***P*** **-** Wash bottle (01) ***Q*** **-** Volumetric flask (01)	02
		(ii)		Triple beam balance/ Four beam balance/Electronic balance	01
		(iii)		Mass of NaCl required to prepare 1000.00 cm^3 of 1.00 mol dm^{-3} solution = 58.5 g Mass of NaCl required to prepare 500.00 cm^3 of 1.00 mol dm^{-3} solution = 29.25 g	02
		(iv)	(a)	From bottom to top	01
			(b)	NaCl melts little by little and flows through the funnel into the volumetric flask (when water is poured from above, the NaCl does not dissolve and falls into the funnel and can get stuck in the funnel).	01
		(v)		Impurity of NaCl/inaccuracy of mass and volume.	01
		(vi)	(a)	Recrystallization	01
			(b)	For obtaining pure compounds from impure compounds/ in pharmaceutical medicine manufacture.	01
	(B)	(i)	(a)	Butane	01
			(b)	For the correct structural formula.	01
		(ii)		Homogeneous.	01

		(iii)		To identify th gas leak by smell.	01
	(C)	(i)		***A***	01
		(ii)		OH^- , SO_4^{2-}	01
		(iii)	(a)	Air bubbles evolve	01
			(b)	$2H^+ + 2e \longrightarrow H_2$	02
				Total Marks	**20**
7	***(A)***	(i)		4 m s^{-1}	01
		(ii)		Acceleration = Gradient of the graph = X Difference of co-ordinates/ Y Difference of co-ordinates = 4-0 / 4-0 = 1m s^{-2}	02
		(iii)		Displacement = Area of the image = (Sum of the parallel lines/ 2) x Perpendicular height = (10+4) / 2 x 4 = 7 x 4 = 28 m	02
	(B)	(i)			02
		(ii)		Inverted/ Real/ Similar in size to the object (mark 02 if all three features are present and 01 if two features are present)	02
		(iii)		Concave mirror	01
		(iv)	(a)	Infrared (IR)/ Visible light	02
			(b)	Infrared - Use of infrared sensitive camera/ as thermal radiation (for correct answer) (01) Visible Light- Proper use of illumination, communication etc. (01)	02
			(c)	Not requiring a medium for transmission, the existence of two perpendicularly oscillating electric and magnetic fields is one of the correct characteristics.	01
	(C)	(i)		Resultant force = 4000 N + 4000 N (01) Resultant force = 8000N (if unit present 01)	02
		(ii)		Since the system is in equilibrium the force exerted on unit mass is equal i.e. the pressure is 10000 Pa.	01
		(iii)		Fluid Pressure Jack (01) Vehicle Braking System (01) Or 01 Marks for any other correct answer.	02
				Total marks	**20**
8	***(A)***	(i)		For a correct answer such as (warm blooded/ having four chambers of the heart)	01
		(ii)		01 mark for each correct answer such as having skin hairs/ having mammary glands, sebaceous glands and sweat glands/ having external ear lobes/ scrotum located externally.	02
		(iii)		Whale/ Dolphin/ Sea Lion	01
		(iv)		Streamlined shape (01)	01

				Reduction of the air resistance when flying	
	(B)	(i)		***P-*** Xylem (01) ***Q*** - Phloem (01)	02
		(ii)		Xylem - Transport of water and minerals from the root throughout the plant body (01) Phloem - Transportation of food (01)	02
		(iii)		Presence of structure like Tracheid and vessel elements	01
	(C)	(i)		***T*** - Transistor (01) ***R-*** Resistance (01)	02
		(ii)		Should be open	01
		(iii)		$\boldsymbol{E} = 5\ \mathbf{V} \times 10\ \mathbf{A}$ (01) $\boldsymbol{E} = 50\ \mathbf{W}$ (01 for unit)	02
		(iv)		Applying the coil above does not result in uniform heating of the water by convection. So, disagree.	01
		(v)		$\boldsymbol{Q} = \boldsymbol{mc\theta}$ $\boldsymbol{Q} = 0.1\ \text{kg} \times 4200\ \text{J Kg}^{-1}\text{K}^{-1} \times 10\ \text{K}$ (01) $\boldsymbol{Q} = 4200\ \text{J}$ (01 for unit)	02
		(vi)		Having a shining inner surface - Radiation Plastic cover/Plastic cap/With cavity - Conduction For the correct activity (01) To the correct heat transfer method (01)	02
				Total marks	**20**
9	***(A)***	(i)		Limestone ($CaCO_3$) / Coke (C) if both answers are correct	01
		(ii)		The walls of the blast furnace are made to withstand extreme heat.	01
		(iii)		Coke burns and produces heat due to the heat obtained from the hot gas.	01
		(iv)		***D-*** Slug (01) ***E*** - Liquid metal (01)	02
		(v)		Sulphur Dioxide	01
		(vi)		$\mathbf{Fe_2O_3 + 3CO \longrightarrow 2Fe + 3CO_2}$ 160 112 (01) 160 kg 112 kg (01) **80 kg** 56 kg (01) Answer **80 kg**	03
	(B)	(i)		Electro Magnetic Induction	01
		(ii)		Mechanical Energy $\longrightarrow$ Electrical Energy $\longrightarrow$ Light energy	01
		(iii)		The direction of the current produced is backward biased after the LED./ Decrease in magnetic strength of the material/ direction of field of magnetic material parallel to direction of motion.	01
		(iv)		An answer like increasing the number of turns of the coil	01
		(v)		Bicycle dynamo/alternating current dynamo/dynamo/coil microphone or any correct answer.	01
	(C)	(i)		4 Ω	01
		(ii)		$\boldsymbol{V = IR}$ 12 V = $\boldsymbol{I}$ x 4 Ω (01) $\boldsymbol{I}$ = 3A (01)	02
		(iii)		Potential difference (01) Current (01)	02
				Total Marks	**20**