

ET/SSS/2022(2023)/OL/34/S/A/S-1



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கல்வி அமைச்சு  
Ministry of Education

G. C. E. Ordinary Level | අ. තො. ස. කාමාන්‍ය සෙල | 2022 (2023)  
Student Seminar Series

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Practice Paper | උපකාරක ප්‍රශ්න පත්‍ර

Science

විද්‍යාව



**English Medium**

Answer Sheet - I, II | පිළිතුරු පත්‍රය - I, II (සිංහල මාධ්‍යය)



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The National e-Learning Resource Centre for General Education

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**Ministry of Education**

34

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**General Certificate of Education (Ordinary Level) Examination –Pre Test 01**

**Science Answer sheet part I and part II**

**Science Paper I**

Question number	Answer number	Question number	Answer number	Question number	Answer number	Question number	Answer number
1	4	11	1	21	1	31	2
2	2	12	1	22	2	32	4
3	1	13	4	23	4	33	3
4	2	14	4	24	2	34	3
5	1	15	3	25	2	35	2
6	4	16	4	26	3	36	3
7	3	17	4	27	2	37	4
8	1	18	2	28	3	38	4
9	3	19	1	29	2	39	4
10	3	20	2	30	1	40	1

# Science Paper II

## Part A

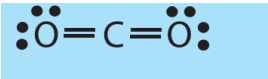
1.	A	(i)	For a food chain of three links constructed using the organisms given in the figure. eg: Plant →Grassoper → Frog	01
		(ii)	Organism in the last link of the food chain written.	01
		(iii)	Carbon cycle / Nitrogen cycle	01
		(iv)	(a) Existence of biotic and abiotic factors (01) Interrelationship between those factors. (01) (For similar idea.)	02
		(v)	It improves soil texture and maintains the balance of soil nutrients It aerate soil/ Systemic water drainage/Fair conditions for soil organisms/ Fair conditions for microorganisms. (For similar idea.)	01
		(vi)	Any two correct heavy metals such as As/Cd/Pb/Hg/Cu ( In Suitable word or symbol)	01
		(vii)	It increases food diversity / Reduces the usage of chemical fertilizer /Easy pest controlling /	01
		(viii)	solar energy /solar panels/ solar cells(01) bio gas (01)	02
	B	(i)	population density	01
		(ii)	Less intraspecific competition for food /shelter/ mates and other needs.	01
		(iii)	<div style="text-align: center;"> </div> <p>Award marks for any decreasing curve or a straight line</p>	01
	C	(i)	The distance a food item travels from its place of manufacture to the place of its consumption.	01
		(ii)	It is not necessary to transport food items grown in home garden, for consumption	01
<b>Total marks</b>				<b>15</b>

2.	A	(i)	A-Fungi (01) B - Plantae (01) or A - Plantae B-Fungi	02
		(ii)	evolutionary relationships	01
		(iii)	C - Cnidaria/Coelenterate (01) D - Echinodermata (01)	02
		(iv)	(a) D and C (03)	03
		(b)	D ( Give marks for any Echinordamate like star fish) (01)	
	B	(i)	(a) Transmit impulses.	01
			(b) Smooth muscles tissue	01
			(c) Walls of digestive tract, blood vessels, Bladder , uterus	01
			(d) Epithelial tissue	01
			(e) Walls of blood capillaries, digestive tract, Bladder, epidermis of skin, etc.	01
		(ii)	The tissue given by A is not a liquid tissue. But blood is a liquid tissue.	01
			(b) Cardiac tissue	01
			<b>Total Marks</b>	<b>15</b>
3	A	(i)	X – Hydrogen (01) Y – Carbon dioxide (01)	02
		(ii)	$Mg (s) + 2HCl (aq) \rightarrow MgCl_2 (aq) + H_2 (g)$ No need to write the physical states.	02
		(iii)	Single displacement reaction	01
		(iv)	When a glowing splinter is inserted in to gas Z, it burns	01
	B	(i)	Being a compound containing only the elements carbon and hydrogen.	01
		(ii)	$  \begin{array}{c}  H \quad H \\    \quad   \\  - C - C - \\    \quad   \\  H \quad H  \end{array}  $	01
		(iii)	By reusing and or recycling polythene/ using biodegradable /thin polythene	01
	C	(i)	(a) Homogeneous (01)	02
			(b) Heterogeneous (01)	
		(ii)	Because both of them are non-polar	01
	D	(i)	student B	01
		(ii)	By heating the solution	01

		(I)		Pressure of the gas	01
				<b>Total Marks</b>	<b>15</b>
4	A	(i)	(a)	10 m s <sup>-1</sup> (No marks for answers without units)	01
			(b)	$s = \frac{1}{2} \times 120 \text{ s} \times 10 \text{ m s}^{-1}$ (01) = 600 m (01)  (No marks for answers without units)	02
		(ii)	(a)	Zero(0) / no unbalanced force	01
			(b)	500 N	02
			(c)	Work = Force x distance = 500 N x (300-120) x 10 m (01) = 900000 J = 900kJ (01)	02
	B	(i)		0 -4 min	01
		(ii)		Because of the evolution of heat to the environment	01
		(iii)		Because the temperature of copper ball is higher than that of water.	01
		(iv)		Convection	01
	C	(i)		A < C < B/A,C,B	01
		(ii)		Black	01
		(iii)		* keep the eye horizontally in line with upper meniscus of Hg column *Take the reading while the bulb dipped in the substance. Any one of these	01
				<b>Total Marks</b>	<b>15</b>

**Part B**

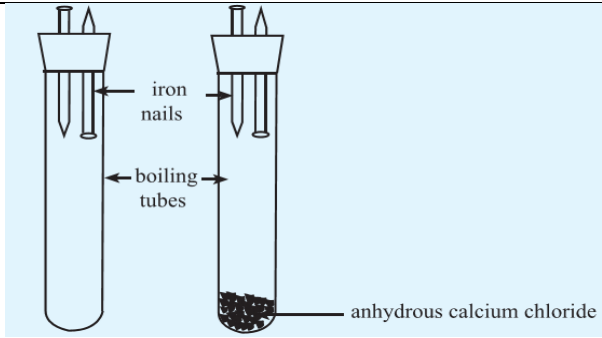
5	A	(i)	(a)	X – cerebrum Z – medulla oblongata	01 01	
			(b)	Y – to maintain balance of the body To control voluntary movements Involve in maintenance of body balance ( any one of these )	01	
		(ii)		1 sensory (Afferent )neuron 2 motor (efferent) neuron	01 01	
		(iii)	(a)	Stimulus - heat of the iron	01	
			(b)	Effector - muscle of the hand	01	
		(iv)		Reflex arc	01	
		(v)		Autonomic nervous system	01	
		(vi)		Nervous coordination	01	
				Electrical impulses	Chemical (hormone) message	
				Message localized	Message widespread	
				Through nerves	Through blood	
				(Any one of these.)		
		(vii)		Hormones are conveyed through blood. Stimulates target organs. Small amount are sufficient for stimulation. (Any one of these.)	01	
	B	(i)		Activity 1 – light Activity 2 – CO <sub>2</sub>	02	
		(ii)		Part P – blue / purple	01	
				Part Q - reddish brown/yellow (No marks for no colour)	01	
		(iii)	(a)	To remove chlorophyll	01	
			(b)	To keep temperature below and avoid being caught fire/ because alcohol is inflammable.	01	
		(iv)		When produced, glucose is converted to starch and is	01	

				stored.	
		(v)		Sucrose	01
		(vi)		Photosynthesis in primary producers provide initial food for the whole living world / to produce O <sub>2</sub> for respiration and combustion.	01
<b>Total marks</b>					<b>20</b>
6	A	(i)		$Q < T < R < P$	01
		(ii)		I and viii / 0	01 01
		(iii)		$Q(g) \longrightarrow Q^+(g) + e$	02
		(iv)		$X \longrightarrow T(Cl)$	01
	B	(i)		Ionic $\longrightarrow$ NaCl	01
				Covalent $\longrightarrow$ CO <sub>2</sub> , AlCl <sub>3</sub>	01
		(ii)		AlCl <sub>3</sub>	01
		(iii)	(a)	$M(CO_2) = 12 \times 1 + 16 \times 2 = 44$	01
			(b)	$M(CO_2) = 44 \text{ g mol}^{-1}$	01
			(c)	2 mol	01
			(d)	Lewis structure 	02
	C	(I)		Acids – A & C Bases – B & D	01 01
			(II)		A and D
		(III)		A, C, D, B	01
		(iv)		NaCl	01
<b>Total marks</b>					<b>20</b>
7	A	(I)	(a)	A – electric meter B - isolator / main switch C – residual current circuit breaker or trip switch D - Distribution box	04
			(b)	C – To open the circuit automatically when there is an	02

				electricity leakage. D – To break down the main supply into several sub circuit s through MCB s/ electricity is distributed for consumption in the household	
		(ii)	(a)	$E = Pt$ (01) $E = 1500 (W) \times 60 \times 10 (s)$ (01) $E = 90000 J$ (01)	03
			(b)	When ironing cloths using electric iron	02
			(c)	No (01) The electric energy consumed depends on the watt value. When the watt values are same the consumed electricity is same during equal time period. (01)	02
	B	(i)		A	01
		(ii)	(a)	In instance A, electromotive force is induced (01) on the conductor, because it moves perpendicular to the magnetic field.(01)	02
				In instance B , electromotive force is not induced,(01) on the conductor, because it moves parallel to the magnetic field (01)	02
		(iii)		Principle of electromagnetic induction	01
		(iv)		Dynamo/ moving coil microphone ( for any correct equipment )	01
<b>Total marks</b>					<b>20</b>
8	A	(i)		Sperms / sperm cells	01
		(ii )		A - head , B – body / middle part	02
		(iii)		Fallopian tube / oviduct	01
		(iv)		Produce in - seminiferous tubules in testes Stored temporally in -Epididymis	01 01
	B	(i)		Vector (female ) / carrier	01



		(ii)		03
	C	(i)	$W = mg = 500/1000 \text{ kg} \times 10 \text{ ms}^{-2} = 5 \text{ N}$	01
		(ii)	$P = hdg = 20/100 \text{ m} \times 800 \text{ kg m}^{-3} \times 10 \text{ ms}^{-2} = 1600 \text{ Pa}$	03
		(iii)	The weight of the object equals to the upthrust. (Since the object is at still / immerse completely and float)	02
		(iv)	5 (01) N (01) ( according to the Archimedes' Principle weight of the fluid displaced equal to the upthrust. Since the object is at still the weight of the object equals to the upthrust)	02
		(v)	Hydrometer (01) Archimedes' Principle (01)	02
<b>Total marks</b>				<b>20</b>
9	A	(i)	Hypothesis a	01
		(ii)	Colour of nail in boiled water does not change , but that of nail in cool water turns reddish brown	01
		(iii)	Air is necessary for rusting	01
		(iv)	When contacted with Zn, iron becomes the cathode and is protected ( cathode protection ) / A metal with low reactivity is protected from rusting by a metal with high reactivity when they are in contact.	01

		(v)		02
B	(i)		exothermic	01
	(ii)		In reactants	01
	(iii)		Exothermic burning of fire wood / mixing quick lime with water/ acid base neutralization reactions Endothermic dissolving urea/ glucose in water/ Photosynthesis / Production of quick lime burning lime (any Correct answers )	02
C	(i)	(a)	Couple of forces	01
		(b)	What matters when unscrewing the nail is the moment of force which is the product of force and perpendicular distance. So when the handle is longer the force necessary is less (similar idea )	02
	(ii)	(a)	1. Magnitude of the force 2. Perpendicular distance to the force from the point of suspension	01
		(b)	Clockwise moment= force x perpendicular distance to the force from the point of suspension	02
		(c)	10 x 15 N cm $50 p + 3 \times 25 \text{ cm} = 10 \times 15 \text{ N}$ P = 1.5 N	02
		(d)	Clockwise moment = anti-clockwise moment 1.5 N= clockwise moment	02
<b>Total marks</b>				<b>20</b>

For MCQ paper 2 x 40 = 80  
Part A 15 x 4 = 60 and Part B 20 x 3 = 60  
Final mark 200 / 2 = 100

**Important**

- Give the relevant marks if the answers given by candidates are acceptable, though those are not mentioned in this answer script.
- Do not give marks for final numerical answers without units, if they should be given with units.
- Take it as an opportunity to prepare students for GCE (O /L) examination , when the answers are being discussed with students.