CCE RF/RR/PF/PR **A**

ಕರ್ನಾಟಕ ಶಾಲಾ ಪರೀಕ್ಷೆ ಮತ್ತು ಮೌಲ್ಯನಿರ್ಣಯ ಮಂಡಲಿ, ಮಲ್ಲೇಶ್ವರಂ, ಬೆಂಗಳೂರು - 560 003

KARNATAKA SCHOOL EXAMINATION AND ASSESSMENT BOARD, MALLESHWARAM, BENGALURU – 560 003

ಮಾರ್ಚ್/ಏಪ್ರಿಲ್ 2025 ರ ಪರೀಕ್ಷೆ - 1

MARCH/APRIL 2025 EXAMINATION - 1

ಮಾದರಿ ಉತ್ತರಗಳು

MODEL ANSWERS

ಸಂಕೇತ ಸಂಖ್ಯೆ : **83-E** **CODE NO. : 83-E**

ವಿಷಯ : ವಿಜ್ಞಾನ

Subject : SCIENCE

(ಭೌತ ವಿಜ್ಞಾನ, ರಸಾಯನ ವಿಜ್ಞಾನ ಮತ್ತು ಜೀವ ವಿಜ್ಞಾನ / **Physics, Chemistry & Biology**)

(ಶಾಲಾ ಅಭ್ಯರ್ಥಿ / ಶಾಲಾ ಪುನರಾವರ್ತಿತ ಅಭ್ಯರ್ಥಿ / ಖಾಸಗಿ ಅಭ್ಯರ್ಥಿ / ಖಾಸಗಿ ಪುನರಾವರ್ತಿತ ಅಭ್ಯರ್ಥಿ)

(**Regular Fresh / Regular Repeater / Private Fresh / Private Repeater**)

(ಭೌತ ವಿಜ್ಞಾನ / **Physics**)

(ಇಂಗ್ಲಿಷ್ ಮಾಧ್ಯಮ / **English Medium**)

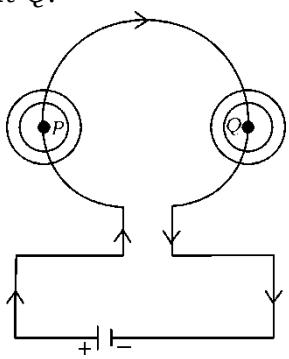
ದಿನಾಂಕ : **02. 04. 2025**] [ಗರಿಷ್ಠ ಅಂಕಗಳು : **80**

Date : 02. 04. 2025] **[Max. Marks : 80**

PART – A

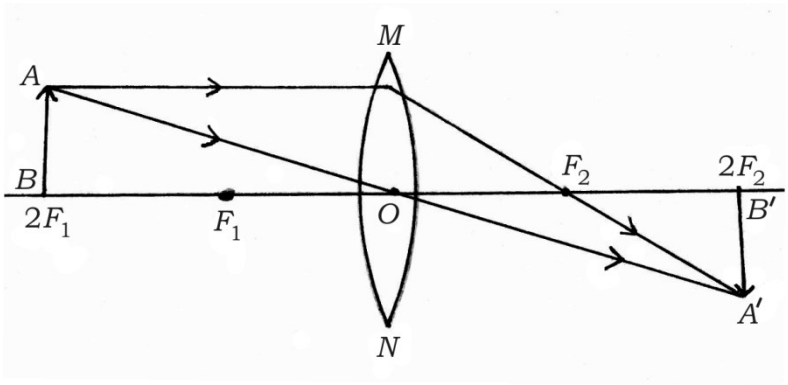
(Physics)

Qn. Nos.	Value Points	Total
I.	**Multiple choice questions :** **3 × 1 = 3**	
1.	Convex mirrors are used in (A) torches (B) rear view mirrors of vehicles (C) search-lights (D) shaving mirrors *Ans.* : (B) rear view mirrors in vehicles	1

Qn. Nos.	Value Points	Total
2.	The sun is visible to us about two minutes before the actual sunrise and about two minutes even after the actual sunset because of atmospheric (A) refraction of light (B) reflection of light (C) scattering of light (D) dispersion of light *Ans.* : (A) refraction of light	1
3.	A current carrying rod is placed between the poles of a horse-shoe magnet. For the maximum displacement of the rod the angle between the direction of electric current and the direction of magnetic field must be (A) 0° (B) 45° (C) 90° (D) 180° *Ans.* : (C) 90°	1
II.	**Answer the following questions :** **3 × 1 = 3**	
4.	Draw a symbol diagram of a resistor used in an electric circuit. *Ans.* : 	1
5.	"Two magnetic field lines do not intersect each other." Justify. *Ans.* : If they did, it would mean that at the point of intersection the compass needle would point towards two directions which is not possible.	1
6.	Observe the circuit diagram given below. Mention the direction of magnetic field that forms around the point *P* and around the point *Q*. 	

Qn. Nos.	Value Points	Total
	Ans. : Anticlockwise at the point *P*. $\frac{1}{2}$ Clockwise at the point *Q*. $\frac{1}{2}$ [Give marks for mentioning the direction in the figure]	1
III.	**Answer the following questions :** **2 × 2 = 4**	
7.	Explain Newton's experiment that shows the recombination of spectrum of white light. *Ans.* : ★ Newton used a glass prism to obtain the spectrum of white light. ★ When he placed a second identical prism in an inverted position with respect to the first prism and allowed the spectrum to pass through it, a beam of white light emerges. ★ This shows the recombination of spectrum of white light.	2
8.	Write any two differences between near-sighted (Myopic) and far-sighted (Hypermetropic) eyes. *Ans.* :	

Myopia	*Hypermetropia*
★ Can see nearby objects clearly / cannot see distant object distinctly	★ Can see distant objects clearly / cannot see nearby objects distinctly
★ The image of a distant object is formed in front of the retina	★ The image of a nearby object is formed behind the retina
★ The far point is nearer than infinity	★ The near point is farther away from the normal
★ The focal length of the eyeball is too short / the eyeball elongates	★ The focal length of the eyeball is too long / the eyeball becomes too small

Qn. Nos.	Value Points	Total
	★ This defect can be corrected by using a concave lens of suitable power ★ This defect can be corrected by using a convex lens of suitable power (Any *two*) 1 + 1	2
IV.	**Answer the following questions :** **3 × 3 = 9**	
9.	Draw the ray diagram of image formed when an object is kept at $2F_1$ of the convex lens. With the help of the ray diagram write the position and nature of the image. (F_1 : Principal focus of the lens) *Ans.* : Ray diagram of image formation when the object is kept at $2F_2$ of the convex lens.  For ray diagram — 2 ★ The image is formed at $2F_2$ $\frac{1}{2}$ ★ Real and inverted image is formed. $\frac{1}{2}$	3
10.	a) State Ohm's law. b) Write the factors on which the resistance of a conductor depend. *Ans.* : a) The potential difference across the ends of a metallic wire (resistor) in an electric circuit is directly proportional to the current flowing through it, provided its temperature remains the same. 1	

Qn. Nos.	Value Points	Total
	b) The resistance of a conductor depends on the following factors : ★ its length $\frac{1}{2}$ ★ its area of cross-section $\frac{1}{2}$ ★ the nature of its material $\frac{1}{2}$ ★ temperature. $\frac{1}{2}$	3
11.	a) What factor helps for determining the relative strength of a magnetic field ? b) What is solenoid ? How is an electromagnet prepared by using it ? **OR** In domestic electric circuits, a) What is the function of earth wire ? b) What precautions should be taken to avoid overloading ? *Ans.* : a) The degree of closeness of the field lines. 1 b) A coil of many turns of insulated copper wire wrapped closely in the shape of a cylinder is called a solenoid. 1 An electromagnet is prepared by placing a piece of magnetic material like soft iron inside a solenoid of strong magnetic field / inside a current carrying solenoid. 1 **OR** a) If any leakage of current occurs in the electrical appliances, keeps their potential difference the same as to that of the earth / provides a low resistance conducting path for the current. 1 b) ★ Fuse should be used in the electric circuit ★ Should avoid the direct contact of live wire and neutral wire.	3

Qn. Nos.	Value Points	Total
	★ Avoid the damage of insulation of wires ★ Should repair any faults in the electrical appliances ★ Should not connect too many appliances to a single socket. (Any *four*) $\frac{1}{2} \times 4 = 2$	3
V.	**Answer the following questions :** **$2 \times 4 = 8$**	
12.	a) How ammeter and voltmeter are connected in an electric circuit ? Mention their function. b) "In domestic electric circuit, the electrical appliances are generally connected in parallel." Give reasons.	
	Ans. :	
	a) ★ Ammeter is connected in series. $\frac{1}{2}$	
	★ Voltmeter is connected in parallel. $\frac{1}{2}$	
	★ Ammeter measures electric current. $\frac{1}{2}$	
	★ Voltmeter measures potential difference between two points. $\frac{1}{2}$	
	b) ★ A parallel circuit divides the current through the electrical gadgets.	
	★ When one component fails, the circuit will not break. The other components work.	
	★ The total resistance is less in this circuit.	
	★ More helpful in cases of different current is required for different electrical appliances.	
	(Any *two*) 1 + 1	4
13.	The radius of curvature of a spherical mirror is 36 cm. Find its focal length. A candle of 5 cm length is placed at a distance of 27 cm in front of a convex mirror of the same focal length. Mention the position and nature of the image and also find the size of the image formed.	
	OR	
	The focal length of a spherical mirror is 10 cm. Find its radius of curvature. An object of 4 cm size is placed at	

Qn. Nos.	Value Points	Total
	20 cm in front of a concave mirror of the same focal length. At what distance from the mirror should a screen be placed in order to obtain a sharp image of the object ? Mention the nature of the image formed and also find the size of the image.	
	Ans. :	
	Given,	
	Radius of curvature $R = 36$ cm	
	Object distance $u = -27$ cm	
	Height of the object $h = 5$ cm	
	Image distance v = ?	
	Height of the image h' = ?	
	Focal length $f = \frac{R}{2}$ $\frac{1}{2}$	
	$f = \frac{36}{2} = 18$ cm $\frac{1}{2}$	
	Since $\frac{1}{v} + \frac{1}{u} = \frac{1}{f}$ (or) $\frac{1}{2}$	
	$\frac{1}{v} = \frac{1}{f} - \frac{1}{u}$	
	$= \frac{1}{18} - \left(\frac{1}{-27}\right) = \frac{1}{18} + \frac{1}{27}$ $\frac{1}{2}$	
	$\frac{1}{v} = \frac{3+2}{54} = \frac{5}{54}$	
	$v = \frac{54}{5} = 10{\cdot}8$ cm $\frac{1}{2}$	
	The distance of the image is 10·8 cm	
	$\frac{h'}{h} = \frac{-v}{u}$ (or) $h' = \frac{h(-v)}{u}$ $\frac{1}{2}$	
	$h' = \frac{5(-10{\cdot}8)}{-27} = 2$ cm $\frac{1}{2}$	
	$\therefore$ Height of the image is 2 cm	
	$\therefore$ The image is virtual and erect. $\frac{1}{2}$	4
	OR	

Qn. Nos.	Value Points	Total
	Focal length $f = -10$ cm Object distance $u = -20$ cm Object height $h = 4$ cm Image distance v = ? Image height h' = ? Radius of curvature = ? Radius of curvature $R = 2f$ $\frac{1}{2}$ $= 2(10) = 20$ cm $\frac{1}{2}$ $\frac{1}{v} + \frac{1}{u} = \frac{1}{f}$ (Or) $\frac{1}{v} = \frac{1}{f} - \frac{1}{u}$ $\frac{1}{2}$ $= \frac{1}{-10} - \left(\frac{1}{-20}\right) = -\frac{1}{10} + \frac{1}{20}$ $\frac{1}{2}$ $\frac{1}{v} = \frac{-2+1}{20} = -\frac{1}{20}$ $v = -20$ cm $\frac{1}{2}$ The screen should be placed at 20 cm in front of the mirror. $\frac{h'}{h} = \frac{-v}{u}$ (or) $h' = \frac{+h(-v)}{u}$ $\frac{1}{2}$ $= \frac{4(-(-20))}{-20}$ $= \frac{4 \times 20}{-20}$ $h' = -4$ cm $\frac{1}{2}$ $\therefore$ Image size is -4 cm $\therefore$ The image is real and inverted. $\frac{1}{2}$	4

CCE RF/RR/PF/PR **A**

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KARNATAKA SCHOOL EXAMINATION AND ASSESSMENT BOARD, MALLESHWARAM, BENGALURU – 560 003

ಮಾರ್ಚ್/ಏಪ್ರಿಲ್ 2025 ರ ಪರೀಕ್ಷೆ - 1

MARCH/APRIL 2025 EXAMINATION - 1

ಮಾದರಿ ಉತ್ತರಗಳು

MODEL ANSWERS

ಸಂಕೇತ ಸಂಖ್ಯೆ : **83-E** **CODE NO. : 83-E**

ವಿಷಯ : ವಿಜ್ಞಾನ

Subject : SCIENCE

(ಭೌತ ವಿಜ್ಞಾನ, ರಸಾಯನ ವಿಜ್ಞಾನ ಮತ್ತು ಜೀವ ವಿಜ್ಞಾನ / **Physics, Chemistry & Biology**)

(ಶಾಲಾ ಅಭ್ಯರ್ಥಿ / ಶಾಲಾ ಪುನರಾವರ್ತಿತ ಅಭ್ಯರ್ಥಿ / ಖಾಸಗಿ ಅಭ್ಯರ್ಥಿ / ಖಾಸಗಿ ಪುನರಾವರ್ತಿತ ಅಭ್ಯರ್ಥಿ)

(**Regular Fresh / Regular Repeater / Private Fresh / Private Repeater**)

(ರಸಾಯನ ವಿಜ್ಞಾನ / **Chemistry**)

(ಇಂಗ್ಲಿಷ್ ಮಾಧ್ಯಮ / **English Medium**)

ದಿನಾಂಕ : **02. 04. 2025**] [ಗರಿಷ್ಠ ಅಂಕಗಳು : **80**

Date : 02. 04. 2025] **[Max. Marks : 80**

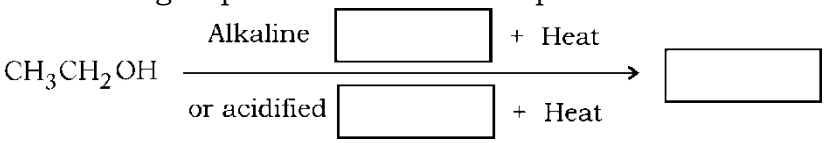
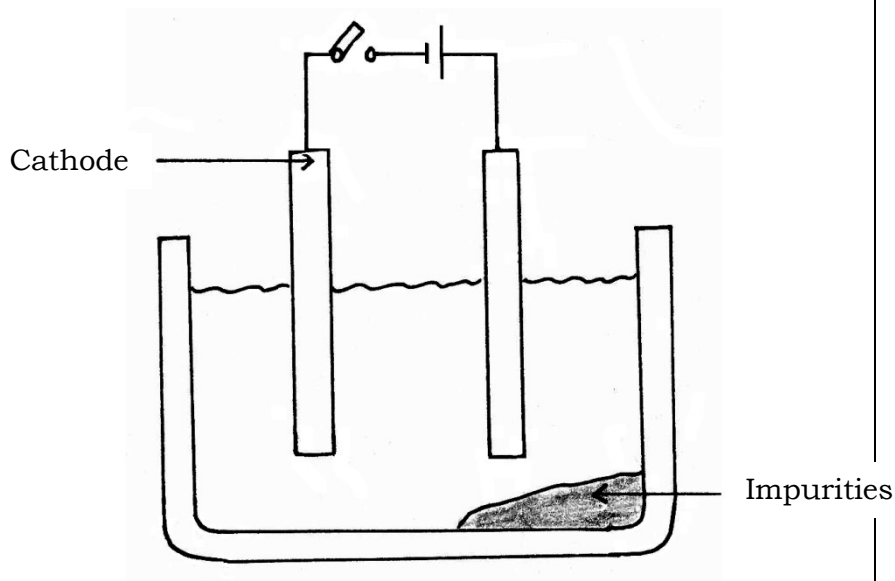
PART – B

(Chemistry)

Qn. Nos.	Value Points	Total
VI.	**Multiple choice questions :** **2 × 1 = 2**	
14.	Correct statement related to the soaps among the following is, soaps (A) easily give excess of foam in hard water (B) form insoluble precipitate in hard water (C) easily clean oils like dirt in hard water (D) are sodium salts of sulphonic acid	

Qn. Nos.	Value Points	Total
	Ans. :	
	(B) form insoluble precipitate in hard water	1
15.	$CuO + H_2 \xrightarrow{Heat} Cu + H_2O$	
	In this chemical reaction,	
	(A) hydrogen is reduced to form water	
	(B) exchange of ions took place between the reactants	
	(C) copper oxide is oxidised to form copper	
	(D) copper oxide is reduced to form copper	
	Ans. :	
	(D) copper oxide is reduced to form copper	1
VII.	**Answer the following questions :** **2 × 1 = 2**	
16.	Mention any two measures for preventing corrosion of iron.	
	Ans. :	
	★ Painting	
	★ Oiling	
	★ Greasing	
	★ Galvanising	
	★ Making alloys	
	★ Chromium plating	
	(any *two*) $2 \times \frac{1}{2}$	1
17.	How is concentrated acid diluted ?	
	Ans. :	
	By adding the acid slowly to the water with constant stirring.	1
VIII.	**Answer the following questions :** **3 × 2 = 6**	
18.	What is rancidity ? Mention any two methods of preventing rancidity.	
	Ans. :	
	When fat and oil containing food materials oxidise, then their smell and taste change. This is called rancidity. 1	

Qn. Nos.	Value Points	Total
19.	Methods of preventing rancidity : ★ Adding substances which prevent oxidation (antioxidants) ★ Keeping fried food materials in airtight containers ★ Flushing bags of chips with nitrogen gas. (any *two*) $2 \times \frac{1}{2}$	2
	Give reason : a) Zinc oxide is called as an amphoteric oxide b) Sodium metal is stored in kerosene. **OR** Give reason : a) Gold is used to make jewellery b) Ionic compounds in the solid state do not conduct electricity. *Ans.* : a) Zinc oxide reacts with both acids and bases to produce salt and water. 1 b) Sodium metal reacts violently with water and atmospheric oxygen but does not react with kerosene. 1	2
	OR a) ★ Lustrous ★ Has ductile property ★ Has malleable property ★ Least reactive. (any *two*) $2 \times \frac{1}{2}$ b) ★ Movement of ions in the solid is not possible due to their rigid structure. ★ Free ions will not form. (any *one*) 1	2

Qn. Nos.	Value Points	Total
20.	Complete the following oxidation reaction and name the functional group that is found in the product :  *Ans.* : ★ Alkaline $KMnO_4$ $\frac{1}{2}$ ★ Acidified $K_2Cr_2O_7$ $\frac{1}{2}$ ★ ⟶ CH_3COOH $\frac{1}{2}$ ★ – COOH / Carboxylic acid. $\frac{1}{2}$	2
IX.	**Answer the following questions :** **2 × 3 = 6**	
21.	Draw the diagram of the arrangement of apparatus used to show the electrolytic refining of copper. Label the following parts : i) Cathode ii) Impurities. *Ans.* :  Diagram — 2 Parts — $\frac{1}{2}+\frac{1}{2}$	3

Qn. Nos.	Value Points	Total
22.	Write the chemical equations for the following reactions. i) Quicklime is reacted with water ii) Zinc pieces are added to copper sulphate solution iii) Sodium chloride solution is added to silver nitrate solution. **OR** Balance the following chemical equations : i) $H_2 + O_2 \longrightarrow H_2O$ ii) $Na_2CO_3 + HCl \longrightarrow NaCl + H_2O + CO_2$ iii) $N_2 + H_2 \longrightarrow NH_3$ *Ans.* : i) ★ Calcium oxide + Water → Calcium hydroxide ★ $CaO + H_2O \rightarrow Ca(OH)_2$ (any *one*) 1 ii) ★ Copper sulphate + Zinc → Zinc sulphate + Copper ★ $CuSO_4 + Zn \rightarrow ZnSO_4 + Cu$ (any *one*) 1 iii) ★ Sodium chloride + Silver nitrate → Silver chloride + Sodium nitrate ★ $NaCl + AgNO_3 \rightarrow AgCl + NaNO_3$. (any *one*) 1 **OR** i) $2H_2 + O_2 \rightarrow 2H_2O$ $\frac{1}{2}+\frac{1}{2}$ ii) $Na_2CO_3 + 2HCl \rightarrow 2NaCl + H_2O + CO_2$ $\frac{1}{2}+\frac{1}{2}$ iii) $N_2 + 3H_2 \rightarrow 2NH_3$ $\frac{1}{2}+\frac{1}{2}$	3 3
X.	**Answer the following question :** **1 × 4 = 4**	
23.	a) NaOH, $Ca(OH)_2$, H_2 and Cl_2 materials are given to you. By using which of these materials you can prepare bleaching powder ? Write the chemical name and one use of the bleaching powder.	

Qn. Nos.	Value Points	Total
	b) i) How do you identify a solution as basic solution by using blue litmus paper ? ii) Under what condition does a farmer treat the soil of his field with slaked lime ?	
	Ans. :	
	a) ★ $Ca(OH)_2$ $\frac{1}{2}$	
	★ Cl_2 $\frac{1}{2}$	
	★ $CaOCl_2$ / Calcium oxychloride $\frac{1}{2}$	
	★ — for bleaching cotton and linen in the textile industry — for bleaching wood pulp in paper factories — for bleaching washed clothes in laundry — as an oxidising agent in many chemical industries — as disinfectant to make drinking water free from germs. (any *one*) $\frac{1}{2}$	
	b) i) The blue litmus paper does not change its colour in basic solution. 1	
	ii) ★ When acidic property of soil increases ★ When pH value of soil decreases ★ When the concentration of H^+ / H_3O^+ ions in soil increases. (any *one*) 1	4
XI.	**Answer the following question : 1 × 5 = 5**	
24.	a) Write any two differences between saturated and unsaturated carbon compounds. b) What are structural isomers ? Write the structural isomers of butane.	

Qn. Nos.	Value Points	Total

c) Write the electron dot structure of methane molecule.

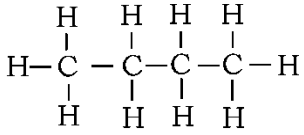
Ans. :

a)

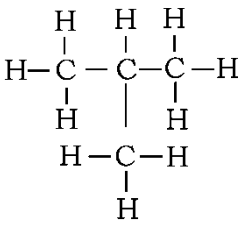
Saturated carbon compounds	*Unsaturated carbon compounds*
★ Have single bond between carbon-carbon atoms.	★ Have double or triple bonds between carbon-carbon atoms.
★ Less reactive	★ More reactive
★ Undergo substitution reaction	★ Undergo addition and substitution reactions.
★ Give blue flame on combustion	★ Give yellow / red flame on combustion

(any *two*) 2×1

b) Carbon compounds with same molecular formula but different structures are called structural isomers. 1

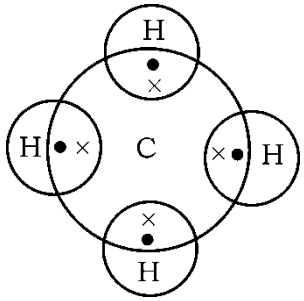


n-butane



isobutane $\frac{1}{2}+\frac{1}{2}$

c)



1 5

CCE RF/RR/PF/PR **A**

ಕರ್ನಾಟಕ ಶಾಲಾ ಪರೀಕ್ಷೆ ಮತ್ತು ಮೌಲ್ಯನಿರ್ಣಯ ಮಂಡಲಿ, ಮಲ್ಲೇಶ್ವರಂ, ಬೆಂಗಳೂರು - **560 003**

KARNATAKA SCHOOL EXAMINATION AND ASSESSMENT BOARD, MALLESHWARAM, BENGALURU – 560 003

ಮಾರ್ಚ್/ಏಪ್ರಿಲ್ 2025 ರ ಪರೀಕ್ಷೆ - 1

MARCH/APRIL 2025 EXAMINATION - 1

ಮಾದರಿ ಉತ್ತರಗಳು

MODEL ANSWERS

ಸಂಕೇತ ಸಂಖ್ಯೆ : **83-E** **CODE NO. : 83-E**

ವಿಷಯ : ವಿಜ್ಞಾನ

Subject : SCIENCE

(ಭೌತ ವಿಜ್ಞಾನ, ರಸಾಯನ ವಿಜ್ಞಾನ ಮತ್ತು ಜೀವ ವಿಜ್ಞಾನ / Physics, Chemistry & Biology)

(ಶಾಲಾ ಅಭ್ಯರ್ಥಿ / ಶಾಲಾ ಪುನರಾವರ್ತಿತ ಅಭ್ಯರ್ಥಿ / ಖಾಸಗಿ ಅಭ್ಯರ್ಥಿ / ಖಾಸಗಿ ಪುನರಾವರ್ತಿತ ಅಭ್ಯರ್ಥಿ)

(Regular Fresh / Regular Repeater / Private Fresh / Private Repeater)

(ಜೀವ ವಿಜ್ಞಾನ / Biology)

(ಇಂಗ್ಲಿಷ್ ಮಾಧ್ಯಮ / English Medium)

ದಿನಾಂಕ : **02. 04. 2025]** **[ಗರಿಷ್ಠ ಅಂಕಗಳು : 80**

Date : 02. 04. 2025] **[Max. Marks : 80**

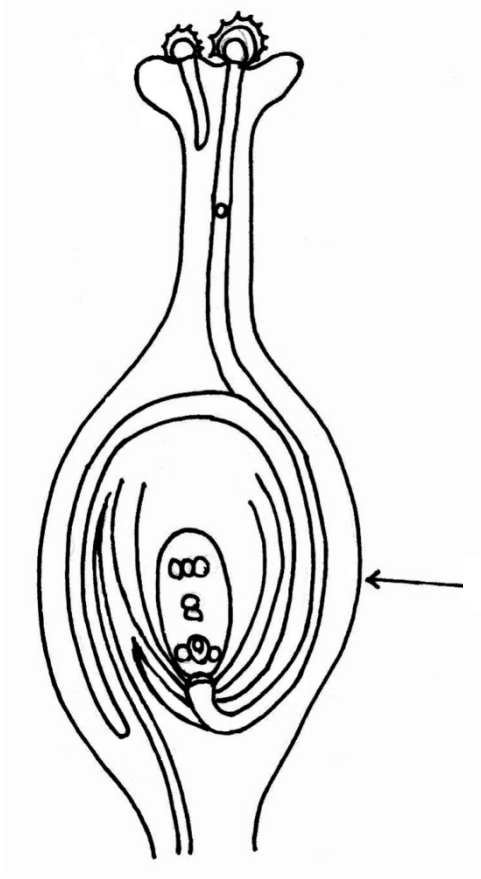
PART – C

(Biology)

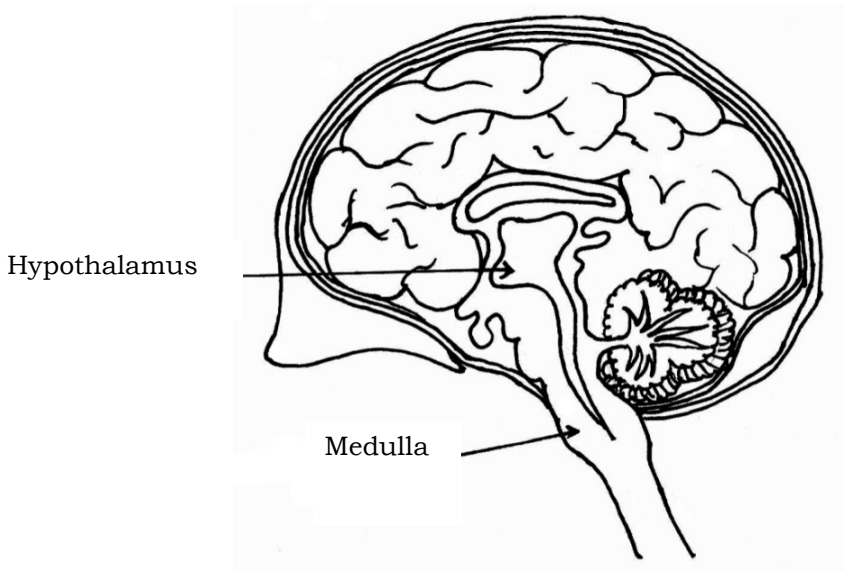
Qn. Nos.	Value Points	Total
XII.	**Multiple choice questions :** **3 × 1 = 3**	
25.	The information source for making proteins in the cells is (A) Gene (B) Chromosome (C) DNA (D) Ribosome *Ans.* : (C) DNA	1

Qn. Nos.	Value Points	Total
26.	Blood sugar level increases : Undersecretion of insulin hormone :: Swelling of the neck : ..... . (A) Undersecretion of thyroxine hormone (B) More secretion of insulin hormone (C) More secretion of thyroxine hormone (D) Excess intake of iodine. *Ans.* : (A) Undersecretion of thyroxine hormone	1
27.	Type of asexual reproduction that occurs in spirogyra is (A) Budding (B) Regeneration (C) Binary fission (D) Fragmentation *Ans.* : (D) Fragmentation	1
XIII.	**Answer the following questions : 3 × 1 = 3**	
28.	What is the function of ozone layer ? *Ans.* : It shields the surface of the earth from ultraviolet (UV) radiation coming from the sun.	1
29.	What is neuron ? *Ans.* : The structural and functional unit of nervous system / nerve tissue	1
30.	The events that occur during photosynthesis are given below. Write these events in correct order. i) Splitting of water molecules into hydrogen and oxygen ii) Absorption of light energy by chlorophyll iii) Conversion of carbon dioxide to carbohydrates iv) Conversion of light energy to chemical energy. *Ans.* : ii) Absorption of light energy by chlorophyll iv) Conversion of light energy to chemical energy i) Splitting of water molecules into hydrogen and oxygen iii) Conversion of carbon dioxide to carbohydrates.	1

Qn. Nos.	Value Points	Total
XIV.	**Answer the following questions :** **3 × 2 = 6**	
31.	How do auxins promote the growth of tendrils of climbing plants around a support ? **OR** How does our body respond when adrenaline is secreted into the blood ? *Ans.* : ★ When tendrils come in contact with any support, auxins diffuse to the part of tendril which is away from the support. 1 ★ Due to this, the part of tendril away from the support will grow faster than the part of tendril near to the support and causes the tendril to circle around the support. 1 **OR** ★ The heart beats faster, resulting in supply of more oxygen to our muscles. $\frac{1}{2}$ ★ The blood to the digestive system and skin will be reduced due to the contraction of muscles around small arteries in these organs. $\frac{1}{2}$ ★ This diverts the blood to our skeletal muscles. $\frac{1}{2}$ ★ The breathing rate also increases because of the contractions of the diaphragm and the rib muscles. $\frac{1}{2}$	2 2
32.	Construct a food chain using the organisms ; snake, frog, grass and grasshopper. Which organism has more accumulation of harmful chemicals in this food chain ? *Ans.* : ★ Grass → Grasshopper → Frog → Snake 1 ★ Snake 1	2
33.	Draw the diagram showing the germination of pollen on stigma and label 'ovary'.	

Qn. Nos.	Value Points	Total
	Ans. :  Diagram — $1\frac{1}{2}$ Part — $\frac{1}{2}$	2
XV.	**Answer the following questions :** **4 × 3 = 12**	
34.	What is the role of the following enzymes in human alimentary canal ? i) Trypsin ii) Amylase iii) Lipase *Ans.* : i) Digests proteins present in food. 1 ii) Breaks down starch which is a complex molecule to give simple sugar. 1 iii) Breaks down emulsified fats. 1	3

Qn. Nos.	Value Points	Total
35.	Justify the following statements : a) Sexual type of reproduction leads to more variations. b) In woman's uterus the role of placenta is significant for the development of foetus. **OR** a) How does menstruation occur in women ? b) In male reproductive system the testes are located outside the abdominal cavity in scrotum. Why ? *Ans.* : a) ★ Sexual reproduction has the involvement of DNA molecules from two different organisms. (The combination of male and female gametes with different genes takes place) 1 ★ The variations in each generation of population of organisms increase due to new combination of genes. 1 b) Placenta ★ Provides a large surface area for glucose and oxygen to pass from the mother to the embryo. $\frac{1}{2}$ ★ Removes waste substances generated by the developing embryo by transferring into the mother's blood. $\frac{1}{2}$ **OR** a) ★ If the egg is not fertilized, it lives for about one day. 1 ★ Thick and spongy lining of the uterus slowly breaks and comes out through the vagina as blood and mucous. (Menstruation takes place). 1 b) Sperm formation requires a lower temperature than the normal body temperature. 1	3 3

Qn. Nos.	Value Points	Total
36.	Draw the diagram showing the structure of human brain. Label the following parts : i) Hypothalamus ii) Medulla *Ans.* :  Diagram — 2 Part — $\frac{1}{2}+\frac{1}{2}$	3
37.	Round green colour (*RRyy*) seeds producing pea plant is crossed with wrinkled yellow colour seeds (*rrYY*) producing pea plant. Show the result of F_2 generation with the help of a checker board and write the ratio of varieties of plants. **OR** a) Explain the sex determination of a child in human beings. b) How can the traits of organisms be decided as either dominant or recessive ?	

Qn. Nos.	Value Points	Total

Ans. :

RRyy × *rrYY*

(round, green) (wrinkled, yellow)

Gametes : *Ry* *rY*

RrYy F_1 generation

(round, yellow)

RrYy (F_1) × *RrYy* (F_1)

	RY	*Ry*	*rY*	*ry*
RY	*RRYY*	*RRYy*	*RrYY*	*RrYy*
Ry	*RRYy*	*RRyy*	*RrYy*	*Rryy*
rY	*RrYY*	*RrYy*	*rrYY*	*rrYy*
ry	*RrYy*	*Rryy*	*rrYy*	*rryy*

To checker board — 2

The ratio of varieties of plants is = 9 : 3 : 3 : 1 — 1 — **Total: 3**

OR

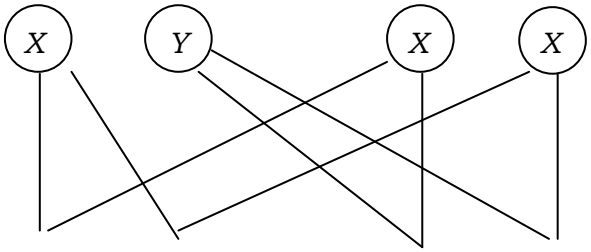
a) ★ One odd pair of sex chromosomes found in father. They are *X* and *Y* chromosomes. $\frac{1}{2}$

★ But, mother has only *XX* chromosomes. $\frac{1}{2}$

★ The child received *X* haploid chromosome from father also receives *X* chromosome from mother, therefore *XX* pair of chromosome represents girl child. $\frac{1}{2}$

★ The child received *Y* haploid chromosome from father, also receives *X* chromosome from mother, therefore *XY* pair of chromosome represents boy child. $\frac{1}{2}$

OR

Qn. Nos.	Value Points	Total
	Parents : Father *XY* Mother *XX*  2 b) The traits that express / appear in the organisms are dominant traits. The traits that are invisible / hidden / less appearing traits are considered as recessive traits. 1	3
XVI.	**Answer the following question : 1 × 4 = 4**	
38.	a) Explain briefly the role of haemoglobin pigments present in our blood. b) What are the different strategies of excretion found in plants ? *Ans.* : a) ★ Haemoglobin pigments give red colour to the blood and have high affinity towards oxygen. 1 ★ These supply dissolved oxygen to all the cells of the body through the blood circulation. 1 (In turn help in the production of energy) b) ★ Get rid of excess water by transpiration ★ Waste products of plants are stored in cellular vacuoles ★ Leaves fall off that store waste products in them. ★ Waste products are stored as resins and gums in old xylem. ★ Plants excrete some waste substances into the soil around them. (Any *four*) $4 \times \frac{1}{2}$	4