CCE RR/PR/NSR/NSPR
REDUCED SYLLABUS

B

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

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

ಜೂನ್ 2024 ರ ಪರೀಕ್ಷೆ - 2

JUNE 2024 EXAMINATION – 2

ಮಾದರಿ ಉತ್ತರಗಳು

MODEL ANSWERS

ಸಂಕೇತ ಸಂಖ್ಯೆ : **83-E (Phy)** **CODE NO. : 83-E (Phy)**

ವಿಷಯ : ವಿಜ್ಞಾನ

Subject : SCIENCE

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

(ಶಾಲಾ ಪುನರಾವರ್ತಿತ ಅಭ್ಯರ್ಥಿ / ಖಾಸಗಿ ಪುನರಾವರ್ತಿತ ಅಭ್ಯರ್ಥಿ / ಎನ್.ಎಸ್.ಆರ್. / ಎನ್.ಎಸ್.ಪಿ.ಆರ್.)
(Regular Repeater / Private Repeater / NSR / NSPR)

(ಭೌತಶಾಸ್ತ್ರ / Physics)

(ಇಂಗ್ಲಿಷ್ ಮಾಧ್ಯಮ / English Medium)

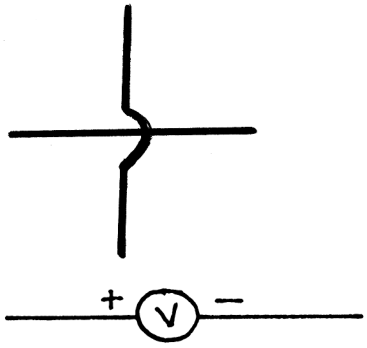
ದಿನಾಂಕ : 20. 06. 2024] **[ಗರಿಷ್ಠ ಅಂಕಗಳು : 80**

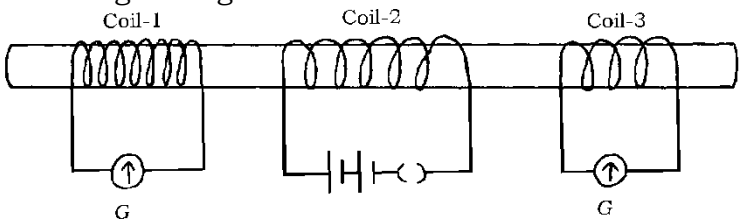
Date : 20. 06. 2024] **[Max. Marks : 80**

PART – A
(Physics)

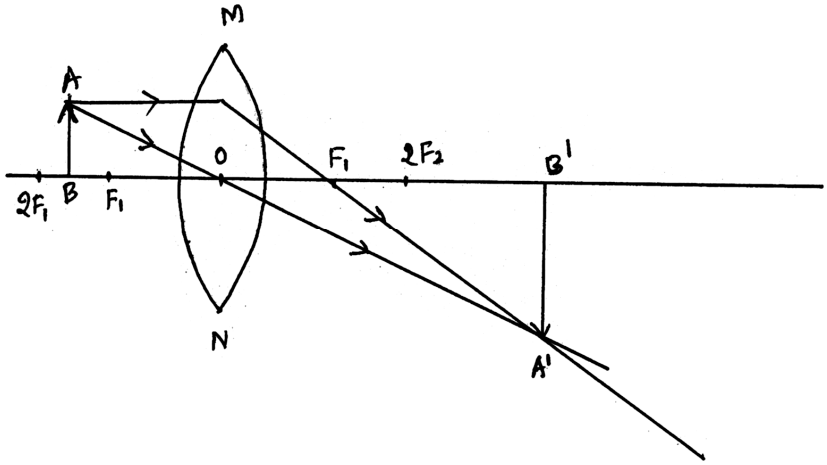
Qn. Nos.	Value Points	Total
I.	**Multiple choice questions :** **4 × 1 = 4**	
1.	To get virtual and erect image by a convex lens, an object is to be placed (A) beyond $2F_1$ (B) between F_1 and $2F_1$ (C) at focus F_1 (D) between focus F_1 and optical centre O *Ans.* : (D) between focus F_1 and optical centre O	1

Qn. Nos.	Value Points	Total
2.	Which of the following lenses would you prefer to use while reading small letters found in a dictionary ? (A) A convex lens of focal length 60 cm (B) A concave lens of focal length 60 cm (C) A convex lens of focal length 6 cm (D) A concave lens of focal length 6 cm *Ans.* : (C) A convex lens of focal length 6 cm	1
3.	The magnetic field inside a long straight solenoid carrying current (A) is the same at all points (B) is zero (C) decreases as we move towards its end (D) increases as we move towards its end *Ans.* : (A) is the same at all points	1
4.	A light ray enters from a rarer medium to a denser medium. Then the speed of that light ray and its mode of refraction respectively are (A) increases and bends away from the normal (B) decreases and bends towards the normal (C) increases and bends towards the normal (D) decreases and bends away from the normal *Ans.* : (B) decreases and bends towards the normal	1

Qn. Nos.	Value Points	Total
II.	**Answer the following questions :** **2 × 1 = 2**	
5.	Write the symbols of the following components used in an electric circuit. i) Wires crossing without joining ii) Voltmeter *Ans.* : i) ii)  $\frac{1}{2}+\frac{1}{2}$	1
6.	Find the focal length of a lens of power – 4·0 D. What type of lens is this ? *Ans.* : ★ Here, power, $P = -4{\cdot}0$ D ; f = ? $\therefore \quad P = \frac{1}{f}$ $\therefore \quad -4 = \frac{1}{f}$ $\therefore \quad f = -\frac{1}{4}$ $\therefore \quad f = -0{\cdot}25$ m $\frac{1}{2}$ ★ Power is negative and hence the lens is concave lens. $\frac{1}{2}$	1

Qn. Nos.	Value Points	Total
III.	**Answer the following questions :** **2 × 2 = 4**	
7.	Observe the given figure :  If the key connected to Coil-2 is plugged, in which of the other two coils more current is induced ? Why ? *Ans.* : ★ More current is induced in Coil-1. 1 ★ Coil-1 has more number of turns than Coil-3 ★ As the number of turns increases more the current induced also increases. (Any *one* point) 1	2
8.	State two laws of refraction of light. *Ans.* : i) The incident ray, the refracted ray and the normal to the interface of two transparent media at the point of incidence, all lie in the same plane. 1 ii) The ratio of sine of angle of incidence to the sine of angle of refraction is a constant for the light of a given colour and for the given pair of media. OR $\frac{\sin i}{\sin r}$ = constant. (Any *one* point) 1	2

Qn. Nos.	Value Points	Total
IV.	**Answer the following questions :** **3 × 3 = 9**	
9.	A concave lens has focal length of 25 cm. At what distance should the object from the lens be placed so that it forms an image at 20 cm from the lens ? Find the magnification of the image produced by the lens.	
	Ans. :	
	Here, $v = -20$ cm, $f = -25$ cm, $u = ?$	
	$\frac{1}{v} - \frac{1}{u} = \frac{1}{f}$	
	$\therefore \quad -\frac{1}{u} = \frac{1}{f} - \frac{1}{v}$	
	$\therefore \quad \frac{1}{u} = -\frac{1}{f} + \frac{1}{v}$	
	$\therefore \quad \frac{1}{u} = \frac{1}{v} - \frac{1}{f}$	
	$\therefore \quad \frac{1}{u} = \frac{1}{-20} - \frac{1}{-25}$	
	$\therefore \quad \frac{1}{u} = -\frac{1}{20} + \frac{1}{25}$	
	$\therefore \quad \frac{1}{u} = \frac{-5+4}{100}$	
	$\therefore \quad \frac{1}{u} = -\frac{1}{100}$	
	$\therefore \quad u = -100$ cm 2	
	$\therefore$ Object distance = 100 cm	
	Magnification, $m = \frac{v}{u}$	
	$= \frac{-20}{-100}$	
	$= \frac{1}{5}$ 1	
	$\therefore \quad m = +0{\cdot}2$	3

Qn. Nos.	Value Points	Total
10.	Draw the ray diagram for the image formation in a convex lens when the object is placed between F_1 and $2F_1$. Mention the position and nature of the image formed. [F_1 : Principal focus of the lens] *Ans.* :  Diagram — 2 Position of the image — Beyond $2F_2$ — $\frac{1}{2}$ Nature of image is — Real and inverted — $\frac{1}{2}$	3
11.	a) Mention the function of digester present in bio-gas plant. b) Mention four properties to support that the bio-gas is an excellent fuel. **OR** a) Mention any four properties of a good source of energy. b) Mention the principal advantages of solar cells. *Ans.* : a) *Function of digester present in bio-gas plant :* Anaerobic micro-organisms here decompose the complex compounds of the cow-dung slurry. The decomposition process completes here and generates bio-gas. 1	

Qn. Nos.	Value Points	Total
	b) ★ Bio-gas contains up to 75% methane. ★ It burns without smoke and leaves no residue ★ Its heating capacity is very high ★ It is also used for lighting ★ The slurry left behind is used as excellent manure ★ The large scale utilisation of bio-waste and sewage material provides a safe and efficient method of waste-disposal. (Any *four* points) $4 \times \frac{1}{2} = 2$	3
	OR	
	a) *Properties of a good source of energy :* ★ It should do a large amount of work per unit volume or mass. $\frac{1}{2}$ ★ It should be easily accessible. $\frac{1}{2}$ ★ It should be easy to store and transport $\frac{1}{2}$ ★ It should be economical. $\frac{1}{2}$	
	b) *Principal advantages of solar cells* : ★ They have no moving parts. ★ They require little maintenance. ★ Work quite satisfactorily without the use of any focussing device. ★ They can be set up in remote and inaccessible hamlets or in areas in which laying a power transmission line may be expensive and not commercially viable. (Any *two* points) $\frac{1}{2} + \frac{1}{2} = 1$	3

Qn. Nos.	Value Points	Total
V.	**Answer the following questions :** **1 × 4 = 4**	
12.	a) Explain an experiment of drawing magnetic field lines around a bar magnet with the help of a compass needle. b) Mention two properties of magnetic field lines. **OR** a) Explain an experiment to show that a current carrying conductor experiences the force in a magnetic field. b) How is a simple electric motor converted into a commercial motor ?	
	Ans. : a) *Drawing magnetic field lines around a bar magnet using a compass needle* : ★ Place a bar magnet on a white paper and mark the boundary of the magnet $\frac{1}{2}$ ★ Place the compass needle near the north pole of the magnet. The south pole of the compass needle directs towards the north pole of the magnet. Mark it with a point. $\frac{1}{2}$ ★ Move the needle to a new position such that its south pole occupies the position previously occupied by its north pole. Mark it with a point. $\frac{1}{2}$ ★ In this way proceed step by step till you reach the south pole of the magnet. $\frac{1}{2}$ ★ Join the points marked on the paper by a small curve. $\frac{1}{2}$ ★ This curve represents a field line. $\frac{1}{2}$	

Qn. Nos.	Value Points	Total
	b) *Properties of magnetic field lines* : ★ Field lines emerge from north pole of a magnet and merge at south pole. ★ Inside the magnet the direction of the field lines is from its south pole to north pole. ★ Magnetic field lines are closed curves. ★ Magnetic field is stronger where the field lines are crowded. ★ No two field-lines are found to cross each other. (Any *two*) $\frac{1}{2} + \frac{1}{2} = 1$ **OR** a) ★ Take a small aluminium rod and suspend it horizontally using connecting wires. $\frac{1}{2}$ ★ Place a strong horse-shoe magnet in such a way that rod lies between the two poles with the magnetic field directed upwards. $\frac{1}{2}$ ★ Connect the aluminium rod in series with a battery, a key and a rheostat. $\frac{1}{2}$ ★ Now pass the current through the aluminium rod in one particular direction. $\frac{1}{2}$ ★ The rod displaces towards one side. $\frac{1}{2}$ ★ Reverse the direction of current flowing through the rod. The rod displaces towards the opposite side. $\frac{1}{2}$ Hence a current carrying conductor experiences a force perpendicular to its length in a magnetic field.	4

Qn. Nos.	Value Points	Total
	b) ★ By replacing permanent magnet with an electromagnet. ★ By increasing the number of turns of the conducting wire in the current-carrying coil. ★ By using a soft iron core on which the coil is wounded. (Any *two*) $\frac{1}{2} + \frac{1}{2} = 1$	4
VI.	**Answer the following question :** **1 × 5 = 5**	
13.	a) What is resistance of a conductor ? On what factors does the resistance of a conductor depend ? b) It is advantageous to connect electrical devices in parallel instead of connecting them in series. Why ? Explain. *Ans.* : a) ★ Resistance of a conductor is a property that resists the flow of electron charges in the conductor. 1 ★ The resistance of a conductor depends on : i) its length $\frac{1}{2}$ ii) its area of cross-section $\frac{1}{2}$ iii) the nature of its material $\frac{1}{2}$ iv) temperature. $\frac{1}{2}$	

Qn. Nos.	Value Points	Total
	b) ★ Parallel circuit divides the current through the electrical devices connected. ★ This is helpful particularly when each device has different resistance and requires different current to operate properly. ★ But in a series circuit when one component fails the current is broken and none of the components works. (Any *two*) 1 + 1	5

CCE RR/PR/NSR/NSPR
REDUCED SYLLABUS

B

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

ಜೂನ್ 2024 ರ ಪರೀಕ್ಷೆ - 2

JUNE 2024 EXAMINATION – 2

ಮಾದರಿ ಉತ್ತರಗಳು

MODEL ANSWERS

ಸಂಕೇತ ಸಂಖ್ಯೆ : 83-E (Chem.) **CODE NO. : 83-E (Chem.)**

ವಿಷಯ : ವಿಜ್ಞಾನ

Subject : SCIENCE

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

(ಶಾಲಾ ಪುನರಾವರ್ತಿತ ಅಭ್ಯರ್ಥಿ / ಖಾಸಗಿ ಪುನರಾವರ್ತಿತ ಅಭ್ಯರ್ಥಿ / ಎನ್.ಎಸ್.ಆರ್. / ಎನ್.ಎಸ್.ಪಿ.ಆರ್.)
(Regular Repeater / Private Repeater / NSR / NSPR)

(ರಸಾಯನಶಾಸ್ತ್ರ / Chemistry)

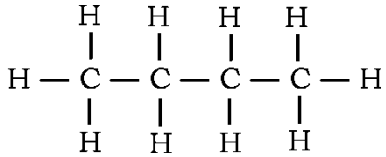
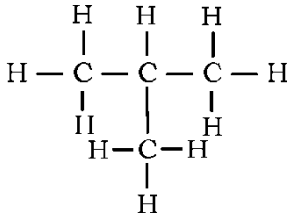
(ಇಂಗ್ಲಿಷ್ ಮಾಧ್ಯಮ / English Medium)

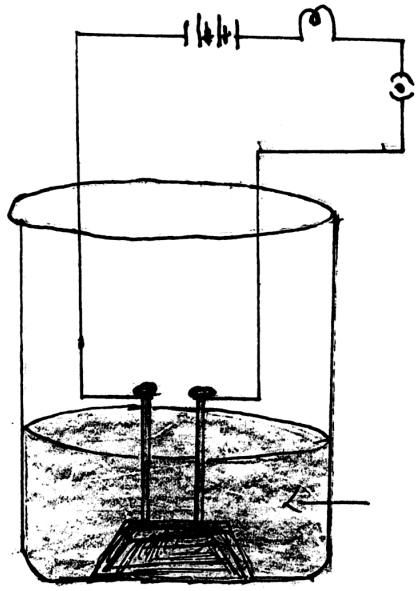
ದಿನಾಂಕ : 20. 06. 2024] **[ಗರಿಷ್ಠ ಅಂಕಗಳು : 80**

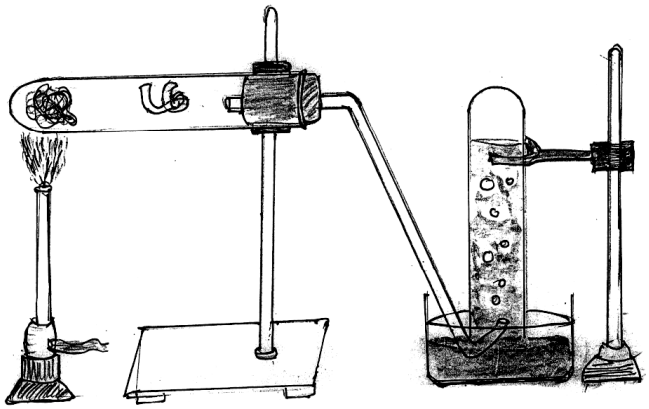
Date : 20. 06. 2024] **[Max. Marks : 80**

PART – B
(Chemistry)

Qn. Nos.	Value Points	Total
VII.	**Multiple choice questions :** **2 × 1 = 2**	
14.	The molecular formula of propanal is (A) C_2H_5COOH (B) C_2H_5CHO (C) C_3H_5CHO (D) C_3H_5COOH *Ans.* : (B) C_2H_5CHO	1

Qn. Nos.	Value Points	Total
15.	Aluminium, Iron, Magnesium and Zinc metals reacted with dilute hydrochloric acid. The series that indicates decreasing order of reactivity of these metals is (A) Mg > Al > Zn > Fe (B) Al > Mg > Fe > Zn (C) Fe > Zn > Al > Mg (D) Fe > Mg > Zn > Al *Ans.* : (A) Mg > Al > Zn > Fe	1
VIII.	**Answer the following questions :** **4 × 1 = 4**	
16.	1M acetic acid is mixed with 1M sodium hydroxide solution. Determine the nature of the salt forms here with suitable reason. *Ans.* : ★ It is a basic salt. $\frac{1}{2}$ ★ Because sodium hydroxide is a strong base. $\frac{1}{2}$	1
17.	Write the structures of isomers of butane. *Ans.* :   $\frac{1}{2} + \frac{1}{2}$	1
18.	Generally ionic compounds have high melting points and boiling points. Why ? *Ans.* : Ionic compounds require considerable amount of energy to break the strong inter-ionic attraction.	1
19.	"Detergents are better cleansers than soaps." Justify this statement. *Ans.* : They clean dirt even in hard water without forming a scum.	1

Qn. Nos.	Value Points	Total
IX.	**Answer the following questions :** **3 × 2 = 6**	
20.	Draw the diagram of arrangement of apparatus to show that acidic solution in water conducts electricity and label dilute HCl solution. *Ans.* :  Drawing : $1\frac{1}{2}$ Labelling : $\frac{1}{2}$	2
21.	What is allotropism ? Write any two allotropes of carbon. **OR** What are amphoteric oxides ? Give two examples. *Ans.* : ★ Existence of an element in different physical forms is called allotropism. 1 ★ *Ex* : Diamond, Graphite, Coal, Coke. (Any *two* examples) $\frac{1}{2} + \frac{1}{2}$ **OR**	2

Qn. Nos.	Value Points	Total
	Metallic oxides that react with both acids as well as bases to produce salt and water are called amphoteric oxides. 1 *Ex.* : Aluminium oxide (Al_2O_3) $\frac{1}{2}$ Zinc oxide (ZnO) $\frac{1}{2}$	2
22.	Draw the diagram of arrangement of apparatus to show the action of steam on metal. *Ans.* : 	2
X.	**Answer the following questions :** **3 × 3 = 9**	
23.	a) What is neutralisation reaction ? What are the nature of the solutions having less than 7 and more than 7 pH values ? b) Name the acid present in the following substances. i) Curd ii) Gastric juice *Ans.* : a) Known quantity of acid if added to a known quantity of base forms salt and water. This is neutralisation reaction OR Acid + Base → Salt + Water 1 Less than 7 pH = Acidic, more than 7 pH = Basic. $\frac{1}{2} + \frac{1}{2}$ b) i) Curd : Lactic acid $\frac{1}{2}$ ii) Gastric juice : Hydrochloric acid [HCl] $\frac{1}{2}$	3

Qn. Nos.	Value Points	Total
24.	Observe the given part of the modern periodic table and answer the following questions :	

Elements	*p*	*q*	*r*	*s*
Atomic No.	4	5	3	7

i) Find the valence electrons of the elements *'q'* and *'r'*.

ii) Which element has larger atomic size and why ?

iii) Find the most electronegative element and give reason.

OR

The electronic configuration of the three elements *x, y* and *z* are 2,8,7 ; 2,8,8 and 2,8,1 respectively.

i) Which element is the most electropositive and why ?

ii) Which element has zero valency and why ?

iii) Predict the type of the chemical bond that forms when *'x'* and *'z'* elements react each other and mention the reason.

Ans. :

i) *q* → K L 2 3 , Valence electrons = 3 $\frac{1}{2}$

r → 2 1 , Valence electron = 1 $\frac{1}{2}$

ii) *r* → Across the period from left to right size of the atom decreases. Only one valence electrtron is found in outer most shell. $\frac{1}{2} + \frac{1}{2}$

iii) *s* → Across the period electronegativity increases. $\frac{1}{2} + \frac{1}{2}$ 3

OR

i) *z* → Electropositivity decreases across the period from left to right. Easily donates one valence electron of outer shell. $\frac{1}{2} + \frac{1}{2}$

ii) *y* → Outermost shell has octet / $ns^2\ np^6$ arrangement of electrons. $\frac{1}{2} + \frac{1}{2}$

iii) Ionic bond. Because of complete transfer of electrons. $\frac{1}{2} + \frac{1}{2}$ 3

Qn. Nos.	Value Points	Total
25.	a) If the molecular formula of first member of a homologous series is C_2H_2, then write the names and the molecular formula of the next two members of the same series. b) Generally vegetable oils are subjected to hydrogenation. Why ? *Ans.* : a) → C_3H_4 : Propyne $\frac{1}{2}+\frac{1}{2}$ → C_4H_6 : Butyne $\frac{1}{2}+\frac{1}{2}$ b) To increase the shelf life of vegetable oils / to prevent oxidation of oils / to prevent rancidity. 1	3
XI.	**Answer the following question : 1 × 4 = 4**	
26.	a) Write any two chemical properties of metals and non-metals. b) Name the following : i) The liquid metal at room temperature ii) The metal that is stored in kerosene. *Ans.* : a) *Chemical properties of metals* : ★ Metals react with oxygen to form basic oxides $\frac{1}{2}$ ★ Metals react with dilute acids and release hydrogen gas. $\frac{1}{2}$ ★ Electron donors. (Any *two*) *Chemical properties of non-metals* : ★ Non-metals react with oxygen to form acidic oxides $\frac{1}{2}$ ★ Electron receptors. $\frac{1}{2}$	

Qn. Nos.	Value Points				Total
	b)	i)	Mercury (Hg)	1	
		ii)	Sodium / Potassium [Na / K]	1	4

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ಜೂನ್ 2024 ರ ಪರೀಕ್ಷೆ - 2

JUNE 2024 EXAMINATION – 2

ಮಾದರಿ ಉತ್ತರಗಳು

MODEL ANSWERS

ಸಂಕೇತ ಸಂಖ್ಯೆ : 83-E (Bio) **CODE NO. : 83-E (Bio)**

ವಿಷಯ : ವಿಜ್ಞಾನ

Subject : SCIENCE

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

(ಶಾಲಾ ಪುನರಾವರ್ತಿತ ಅಭ್ಯರ್ಥಿ / ಖಾಸಗಿ ಪುನರಾವರ್ತಿತ ಅಭ್ಯರ್ಥಿ / ಎನ್.ಎಸ್.ಆರ್. / ಎನ್.ಎಸ್.ಪಿ.ಆರ್.)
(Regular Repeater / Private Repeater / NSR / NSPR)

(ಜೀವಶಾಸ್ತ್ರ / Biology)

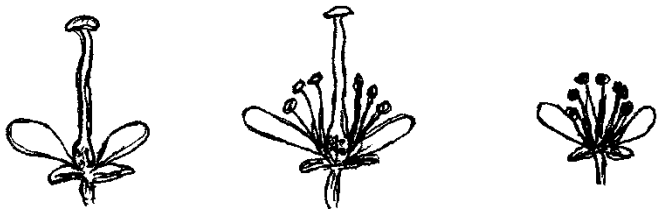
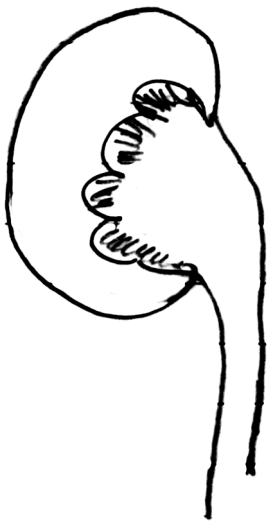
(ಇಂಗ್ಲಿಷ್ ಮಾಧ್ಯಮ / English Medium)

ದಿನಾಂಕ : 20. 06. 2024] **[ಗರಿಷ್ಠ ಅಂಕಗಳು : 80**

Date : 20. 06. 2024] **[Max. Marks : 80**

PART – C
(Biology)

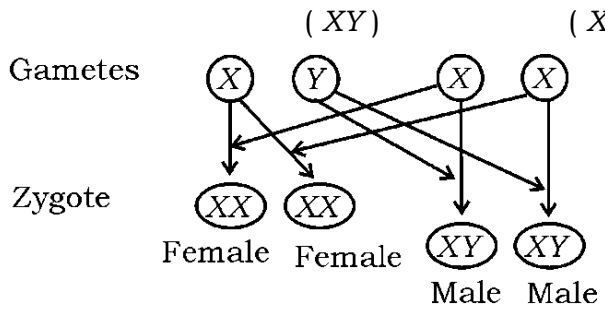
Qn. Nos.	Value Points	Total
XII.	**Multiple choice questions :** **2 × 1 = 2**	
27.	The material transported by xylem tissue in plants is (A) food (B) oxygen (C) water (D) carbon dioxide *Ans.* : (C) water	1

Qn. Nos.	Value Points	Total
28.	The flower that can undergo self pollination among below given figures of flower is  (*P*) (*Q*) (*R*) (A) *'P'* only (B) *'R'* only (C) Both *'P'* and *'R'* (D) *'Q'* only *Ans.* : (D) *'Q'* only	1
XIII.	**Answer the following questions :** **2 × 1 = 2**	
29.	Draw the diagram to show the structure of kidney in the excretory system of human beings. *Ans.* : 	1
30.	Use of CFCs in refrigerant units is strictly prohibited. Why ? *Ans.* : CFCs cause depletion of the ozone layer.	1

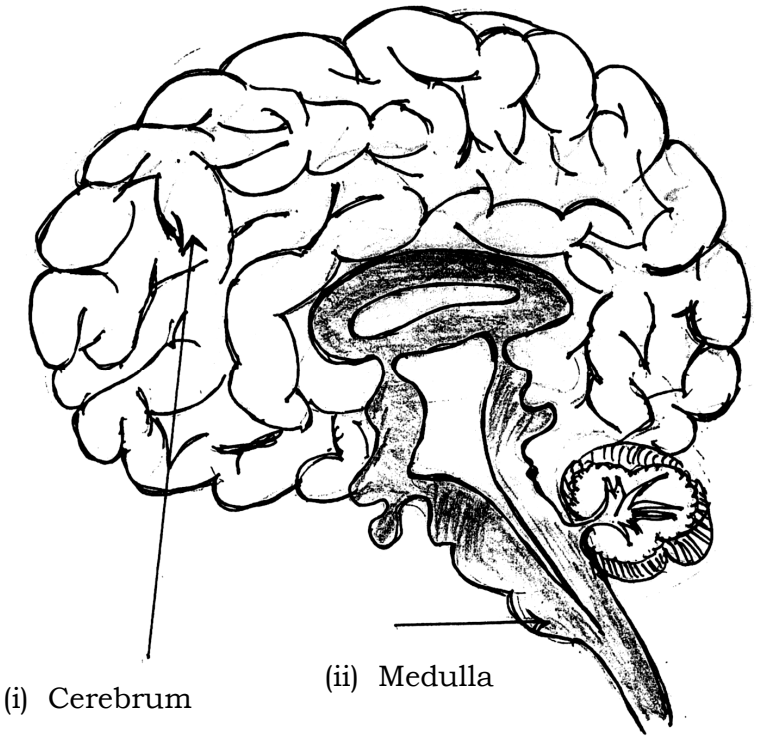
Qn. Nos.	Value Points	Total
XIV.	**Answer the following questions :** **3 × 2 = 6**	
31.	Mention any two differences between biodegradable and non-biodegradable substances.	
	OR	
	"We must avoid the use of plastics." Give two reasons.	
	Ans. :	

Biodegradable substances	*Non-biodegradable substances*
★ These are degraded by microorganisms	★ Will not be degraded by microorganisms
★ These substances enrich the nutrients to the soil	★ Cause pollution

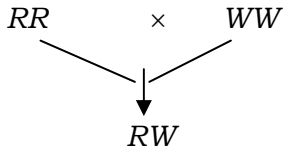
	(Any other suitable points) 1 + 1	2
	OR	
	★ Plastics do not degrade by microorganisms 1	
	★ Plastics pollute water and soil. 1	
	(Any other suitable points)	2
32.	How father is responsible to determine sex of a child in humans ? Explain.	
	Ans. :	
	★ In father the sex chromosomes are odd pair called *'X'* and *'Y'*.	
	★ But in mother both chromosomes are in a perfect pair called '*XX*'	

Qn. Nos.	Value Points	Total
	★ So, if the child gets *'X'* chromosome inherited by father, the sex of a child will be female (*XX*). ★ If the child gets inherited by *'Y'* chromosome, the sex of a child will be male. Hence, the father determines the sex of a child in human beings.	2
	OR ★ Parents Father (*XY*) Mother (*XX*)  	
33.	"If ozone layer is not formed on earth's atmosphere life cannot exist on the earth." Justify this statement with two reasons. *Ans.* : ★ Ozone is a protective layer for earth 1 ★ Ozone protects earth from harmful radiations emitted by sun. 1	2

Qn. Nos.	Value Points	Total
XV.	**Answer the following questions :** **3 × 3 = 9**	
34.	a) How does 'touch-me-not' plant respond to touch ? Explain. b) Mention any one function each of 'auxin' and 'abscissic acid' hormones. **OR** a) How muscle cells respond for a nerve impulse ? b) Mention any one function each of 'insulin' and 'estrogen' hormones in humans. *Ans.* : a) ★ The parts of the plants that are being touched use electrochemical impulses for a movement. $\frac{1}{2}$ ★ For this movement plant cells change their shape by changing the amount of water in them. 1 ★ As a result of this change plant cells either swells or shrinks and therefore change the shape of leaves. $\frac{1}{2}$ b) *Auxins* : They increase cell elongation in the tip of stems. $\frac{1}{2}$ *Abscissic acid* : Inhibits the growth of plants. $\frac{1}{2}$ **OR** a) ★ Muscle cells receive nerve impulses from neurons. $\frac{1}{2}$ ★ Muscle cells converts received electric impulses into chemical signals. $\frac{1}{2}$ ★ Then the special proteins in the muscle cells change their shape and arrangement. $\frac{1}{2}$	3

Qn. Nos.	Value Points	Total
	⋆ Due to this new arrangement of proteins the muscle cells either elongate or become short. $\frac{1}{2}$ b) *Insulin* : Controls the sugar level in blood. $\frac{1}{2}$ *Estrogen* : Promotes development of sex-organs in females / regulates menstruation cycle. $\frac{1}{2}$	3
35.	Draw the diagram showing the structure of longitudinal section of the human brain and label the following parts : i) Cerebrum ii) Medulla. *Ans.* : Structure of L.S. of Human brain.  (i) Cerebrum (ii) Medulla For diagram — 2 Labelling — $\frac{1}{2}+\frac{1}{2}$	3

Qn. Nos.	Value Points	Total
36.	Red flowering (*RR*) 4 O'clock plant is crossed with white flowering (*WW*) 4 O'clock plant. There are 25% red flowering, 25% white flowering and 50% hybrids are obtained in F_2 generation. Then, i) What are the characteristics of plants of F_1 generation ? ii) Show the results of F_2 generation with the help of a checker board and mention the genotypic ratio. iii) Determine the trait that can be considered either as 'dominant' or 'recessive' by analysing the results of both F_1 and F_2 generations. **OR** Read, analyse the given situations and answer the questions given below : *Situation 1 :* Many vegetables and fruits are now available in different colours and sizes. *Situation 2* : The colour of the wings in the population of Drosophila insects is turning to black due to the increase of carbon in some industrial areas. i) In which of the situations the genetic drift happens fastly and why ? ii) Are traits inherit in both of the situations or not ? Justify your answer. *Ans.* :	

Qn. Nos.	Value Points	Total
	i) 	
	F_1 generation [All are hybrids] $\frac{1}{2}$	
	ii) F_2 generation :	

Gametes	*R*	*W*
R	*RR*	*RW*
W	*RW*	*WW*

1

Genotype ratio ; 1 : 2 : 1 $\frac{1}{2}$

iii) In F_1-generation 100% hybrids

In F_2-generation 50% hybrids

So, that neither red colour nor, white colour is dominant / recessive. 1 | 3

OR

i) In situation (1) $\frac{1}{2}$

Because, the changes illustrated here are done by artificial selection. / To get different varieties crossing has been conducted artificially. 1

ii) In situation (1), traits inheritance may happen or may not happen. $\frac{1}{2}$

But, in the situation (2), the genetic variations and their flow will take place. Since it is natural selection and traits can be inherited. 1 | 3

Qn. Nos.	Value Points	Total
XVI.	**Answer the following questions :** **2 × 4 = 8**	
37.	a) What is sexual reproduction ? Which part of the flower develops into seed ? b) What is the role of 'testis' and 'prostate' gland in human male reproductive system ? *Ans.* : a) ★ Production of young ones by the fusion of gametes. 1 ★ Ovule 1 b) *Testis* : ★ Production of sperms / male gametes ★ Controls the production of testosterone. 1 *Prostate gland* : Provides nutritional media for the movement of sperm cells by its secretion. 1	4
38.	a) Briefly explain the formation of urine in nephrons. b) How food materials are transported in higher plants ? Explain.	

Qn. Nos.	Value Points	Total
	Ans. : a) *Formation of urine in nephrons* : ★ Nephron is structural and functional unit of a kidney. ★ The thin walled capillaries are the filtration units in the kidney. $\frac{1}{2}$ ★ Each capillary cluster in the kidney associated with cup shaped structure of the nephron and takes part in the filtration of blood. $\frac{1}{2}$ ★ In this stage some substances in the initial filtrate, such as glucose, amino acids, salts and major amount of water are selectively re-absorbed. 1 The liquid by product that forms after this process is urine. b) ★ Phloem is a food conducting tissue. $\frac{1}{2}$ ★ Phloem translocates soluble products of photo-synthesis, amino acids and other substances from the leaves to all the parts of the plants. $\frac{1}{2}$	

Qn. Nos.	Value Points	Total
	⋆ Translocation takes place in sieve tube, with the help of companion cell, both in upward and downward directions. $\frac{1}{2}$ ⋆ Osmotic pressure helps to move the materials from phloem to other tissues having low pressure. $\frac{1}{2}$	4