KENDRIYA VIDYALAYA SANGATHAN GURUGRAM REGION
PRE-BOARD EXAMINATION 2025-26

CLASS :10 **Max. Marks: 80**

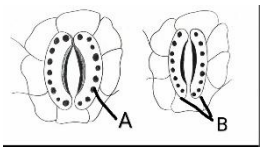
SUBJECT: SCIENCE (086) **Time Allowed: 3 hours**

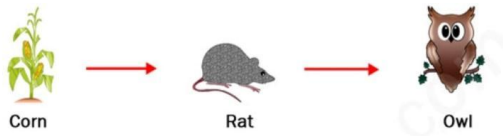
General Instructions:

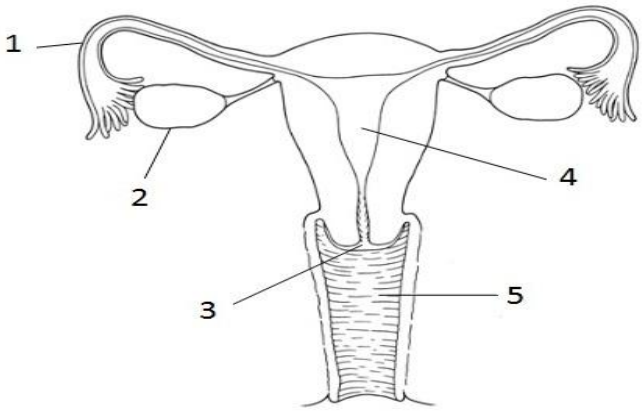
I. *This question paper consists of 39 questions in 3 sections. Section A is Biology, Section B is Chemistry and Section C is Physics.*

II. *All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.*

	Section A	Marks
1	Identify the pair of organisms showing mixotrophic mode of nutrition. A. Nepenthes and Peepal B. Venus fly trap and banyan C. Pitcher plant and Venus fly trap D. Apple and cactus	1
2	If you are walking down a hill top, select the correct part of your brain controlling your movement A. Olfactory lobe B. Pituitary gland and hypothalamus C. Pons and cerebrum D. Cerebellum	1
3	Select the INCORRECT match showing organism with mode of reproduction. A. Leishmania : budding B. Rhizopus : Spores C. Hydra: Budding D. Plasmodium vivex : multiple fission	1
4	In peas, a pure tall (TT) is crossed with a pure short plant(tt). The ratio of pure tall plants to pure short plants in the F2 generation is: A. 1:3 B. 3:1 C. 1:1 A. 2:1	1

5	In order to maintain controlled pollination during his experiments, Mendel did some altercation in plants and their parts. Which one the following was the most most crucial altercation done by him. A. Selection of only dwarf plants. B. Ensuring the random cultivation. C. Removing the anthers and stigma of desired plants before maturity. D. Selection of seeds of plants with only purple coloured flowers.	1
The following two questions consist of two statements – Assertion (A) and Reason (R). Answer these questions by selecting the appropriate option given below: A. Both A and R are true, and R is the correct explanation of A. B. Both A and R are true, and R is not the correct explanation of A. C. A is true but R is false. D. A is false but R is true.		
6	**Assertion**:- Genes controlling expression of a dominating trait remain suppressed in presence of a gene responsible for recessive trait. **Reason**:- Expression of a dominating trait is governed by the Law of dominance given by Mendel.	1
7	**Assertion:** Cuscuta is a parasitic plant. **Reason:** Cuscuta absorbs water and nutrients directly from its host plant.	
8	Meera while ironing her clothes accidentally touched the hot surface. Explain the phenomenon involved in her probable immediate response. Draw the suitable diagram or flowchart.	2
9	A student while observing leaf slide under microscope tiny pores of leaf and  drew the diagram as given above. Write the names of parts A and B with their function in leaf.	2
10	Attempt either option A or B. A. Write any two differences between Artery and Vein? **OR**	2

	B. Explain the role of the following enzymes in the process of digestion of food in humans. (i) Salivary amylase (ii) Pepsin (iii) Trypsin (iv) Lipase	
11	Jimmy depicted flow of energy with the help of a diagram as given below.  i. What Jimmy is trying to express with the help of above diagram. ii. How much energy will be available for owl if corn plants have 2000J available energy after photosynthesis.	2
12	How ozone layer is produced in atmosphere with the help of chemical reactions? Write it's role in our lives. Why this layer is getting depleted?	3
13	a. Name the structural and functional unit of the excretory organ in human beings. b. Name the part of kidney's smallest structural unit performing the function of ultrafiltration of blood. c. Draw a flow chart for the passage of removal of nitrogenous waste material through excretory system in human body.	3
14	DNA is genetic material in each cell of human body clearly visible during cell division in the form of coiled bilobed structures always fixed in number per cell as 46 chromosomes with all genes responsible for expression of traits like hair colour, blood group and sex of the child during early embryonic growth in the womb of mother. 23rd pair is a perfect pair of XX chromosomes in females while it is XY as mismatched pair in human males enabling them to produce two different kinds of gametes. So half chromosomes are from paternal side and half chromosomes are contributed from maternal side establishing the total number of chromosomes 46 again after fertilization. *Attempt either part A or B, C AND D* A. "Father is responsible for male or female sex of child". Justify this statement. B. Female gametes produced are genetically same in all respects. Support this statement with suitable justification.	4

	C. How many chromosomes are present in each gamete of human beings and name the process which ensure this number. D. Which type of chromosomes are present in 22 pairs out of total 23 pair in each cell of human beings?	
15	**Attempt either option A or B.** **A.** i) Suggest categories of contraceptive Methods to control the size of human population. Also explain about each method briefly. ii) Name two bacterial and two viral infections that can get sexually transmitted? **OR** **B.** a) Label the following image of female reproductive system and give the function of each labeled part. **(Any three)**  b) What happens to human egg when it is not ?	5
	SECTION B	
16	A student recorded some facts in the form of statements as given below i. Aqua regia is a mixture of conc. Nitric acid and conc. Hydrochloric acid in the ratio 1:3 ii. Aqua regia is a mixture of dil. Hydrochloric acid and dil. Sulphuric acid in the ratio of 3:1 iii. Aqua regia is also regarded as royal water which can dissolve even gold one of the least reactive metals. iv. Aqua regia is a mixture of conc. Hydrochloric acid and conc. Nitric acid in the ratio of 3:1	1

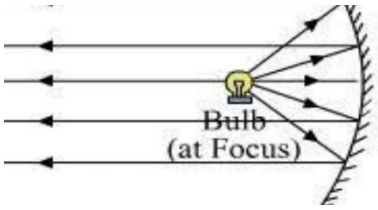
	Select your choice for CORRECT statements A. i and iii B. ii , i and iii C. iii and iv D. ii and iii	
17	Select the INCORRECT statement A. Dilution of a concentrated acid is an exothermic reaction. B. Dilution to be done by adding acid drop wise in excess of water. C. Dilution is an endothermic reaction. D. Dilution to be done by adding concentrated acid drop wise through the walls of a test tube.	1
18	Three solutions Q , R and T with pH 2.3 , 7 and 10.8 are provided to a student of class X. Choose the correct increasing order of H^+ concentration in the given solutions. A. T < Q < R B. Q < T < R C. R < T < Q D. T < R < Q	1
19	While heating limestone a student Elis observed release of a colourless gas which she wanted to test with a confirmatory test. She should test it with the help of i. Burning matchstick test with pop sound. ii. Lime water test turning lime water yellow. iii. Lime water test turning lime water milky iv. Burning matchstick test extinguishing the flame CHOOSE the correct option A. Option i only B. Option iii and iv C. Option iv only D. Option ii only	1

20	Identify 'x', 'y', and 'z' in the following balanced reaction: x H_2(s) + y Cl_2 (g) → z HCl (s) (a) 2, 1, 2 (b) 1, 1, 2 (c) 3, 1, 3 (d) 1, 2, 1	1
21	An organic compound has chemical formula C_3H_6O. Which functional group is present in the compound A. Ester B. Alcohol C. Ketone D. Carboxylic acid	1
22	Andre immersed a zinc plate in aquous solution of copper sulphate.She noticed a thick layer on the surface of the zinc plate after an hour. What is the formula of the colourless solution after the reaction? (a) Zn (b) Cu (c) ZnSO4 (d) CuSO4	1
The following two questions consist of two statements – Assertion (A) and Reason (R). Answer these questions by selecting the appropriate option given below: A. Both A and R are true, and R is the correct explanation of A. B. Both A and R are true, and R is not the correct explanation of A. C. A is true but R is false. D. A is false but R is true.		
23	**Assertion (A):** Pure water is neither acidic nor basic. **Reason (R) :** The pH of a solution is inversely proportional to the concentration of hydrogen ions in it.	1
24	A non-metal W is an important constituent of our food and forms two oxides X and Y. Oxide X is toxic whereas Y causes global warming (a) Identify W, X and Y (b) Which type of bond is formed by W to form compounds.	2
25	A metal 'X' combines with a non-metal 'Y' by the transfer of electrons to form a compound 'Z' commonly known as table salt. i)State the type of bond in compound 'Z'. ii)What can you say about the melting and boiling point of compound Z. iii)Why we keep metal X in kerosene or petrol?	3

	iv)Draw electron dot structure of Z.	
26	Find out the type of chemical reactions. a) $CaCO_3$ (s) + Heat $\rightarrow$ CaO(s) + CO_2 (g) b) Fe(s) + $CuSO_4$ (aq)$\rightarrow$ $FeSO_4$ (aq) + Cu(s) c) $Pb(NO_3)_2$(aq) + KI (aq) $\rightarrow$ PbI_2(s) + KNO_3 (l)	3
27	Earth along with many resources in its deep layers minerals are crucial for mankind to give growth to its social and economical structure with the help of building a strong infrastructure and this is possible with the help of different  metals present in earth crust. Different metals like sodium ,gold copper and silver have their unique reactive properties which help human beings to find out different metallurgical processes to separate them from impurities in Scientific manner. Some ores require roasting while others need calculation techniques based on nature of impurity they have resulting in formation of oxides of metals which later on are reduced in presence of some suitable reducing agent. Electrical refining is necessary for purification of metals extracted by any method from its ore. I. Name one compound suitable for extracting by Roasting? OR Explain Calcination and it's application. II. Give one example of extracting metals low in the activity series. III. What is the another name for HgS an ore of mercury? IV. Write the metallurgical method for extraction of highly reactive metals.	4
28	*Attempt either A or B* A.1.What are two properties of carbon that lead to the huge number of carbon compounds we see around us? 2. An organic compound A is widely used as a preservative in pickle. This compound reacts with ethanol to form a sweet-smelling compound B. i) Identify compound A and write its formula.	5

	ii) Write the chemical equation for its reaction with ethanol to form compound B. iii) How can we get compound A back from B? **OR** B.1.What is meant by the term homologous series of organic compounds? Write the molecular formula of first two members of homologous series of ketones. 2. Draw the structure of the following compounds: a) Bromopentane b) Propanol	
SECTION C		
29	Jennifer modified a straight copper wire into coiled wire and passed current through it. Now coiled wire carrying current will:- i. Behave like a bar magnet with some magnetic field. ii. Not show any deflection if magnetic compass needle is taken near it. iii. Carry uniform magnetic field at the centre and variable magnetic field outside the coiled wire. iv. Show same direction of magnetic field after changing the direction of current. Correct statements are:- A. I and II B. III and II C. IV and I D. I and III	1
30	In domestic circuits we use three types of connecting wires based on their purpose and for identification colored insulation is used for them. Select the Correct option based on above information. A. Live wire, green insulation , carrying load. B. Neutral wire , red insulation , carrying load. C. Earth wire , green insulation , a safety device for earthing. D. Fuse wire , golden insulation, used to complete the circuit	1
31	Two magnetic field lines:	1

	a) Intersect at the neutral point b) Never intersect each other c) Intersect near north-pole or south pole d) Intersect at the midpoint of the magnet	
32	When a current carrying conductor is kept inside a variable magnetic field it experience a force. To determine the direction of the force Jacob wants to use some scientific rule. Select the suitable rule to help Jacob A. Newton's rule B. Flemings right hand rule C. Right hand thumb rule D. Flemings left hand rule	1
33	**Assertion (A) :** Longer wires have greater resistance and the smaller wires have lesser resistance. **Reason (R) :** Resistance is inversely proportional to the length of the wire.	1
34	Emma is using spectacles with lenses of power +2.5D. Name the eye disorder she is affected with. Draw suitable diagram for disorder and correction of this defect.	2
35	An object of height 4cm was placed 40 cm away from a converging lens of focal 20cm. Calculate image distance and describe nature of image with the help of a suitable ray diagram and magnification.	3
36	Marina while working with pencil in her notebook by mistake put the pencil in her glass partially filled with water. She was amazed that pencil changed its shape and appears broken. (a) What is this phenomenon? (b) Write the cause of this phenomenon (c) Explain the two laws associated with this natural phenomenon.	3
37	Explain how will you find direction of a magnetic field in following situations i. A current carrying circular loop ii. A current carrying straight conductor iii. Direction of force when placing a current carrying conductor in variable magnetic field.	3

38	Mirrors are very useful objects for mankind from ancient times when  technology was not so advanced yet people used mirrors for different purposes to fulfil their needs like focusing light at particular place or forming an enhanced image of the object placed distantly apart. Spherical mirrors give an unique advantage over plane mirror by producing image of varied size and at varied distance. Observe the above diagram carefully and answer the following questions a) Why does a bulb in a torch is placed at focus as shown in above diagram. b) If a ray of light is passing through C , of a concave mirror show its its path after reflection. OR Give direction of incident ray of light after reflection from a concave mirror if it is pointing at P. c) An object of height 4cm placed at 3m in front of a plane mirror. Find the size of the image and distance between object and image.	4
39	**Attempt either option A or B.** A. i) Draw a schematic diagram of a circuit consisting of a battery of three cells of 2 V each, a 5 Ω resistor, an 8 Ω resistor, and a 12 Ω resistor, and a plug key, all connected in series. ii) An electric lamp of 100 Ω, a toaster of resistance 50 Ω, and a water filter of resistance 500 Ω are connected in parallel to a 220 V source. What is the resistance of an electric iron connected to the same source that takes as much current as all three appliances, and what is the current through it?	5

	OR **B**. i) How can three resistors of resistances 2 Ω , 3 Ω , 6 Ω be connected to give a total resistance of (a) 4 Ω (b) 1 Ω? ii) Explain the following: (a) Why is the tungsten used almost exclusively for filament of electric lamps? (b) Why is the series arrangement not used for domestic circuits? (c) How does the resistance of wire vary with its area of cross-section?	