G-W CLASSES, GONDIA
Near Giri Hospital, Vivekanand Colony, Gondia. Mob.: 9673916351, 9422950376
email : gwclassesgondia@gmail.com

GW PARIKSHA 02

CLASS-X **SUBJECT- SCIENCE**

TIME ALLOWED: 3 HRS **MAX. MARKS :** 80

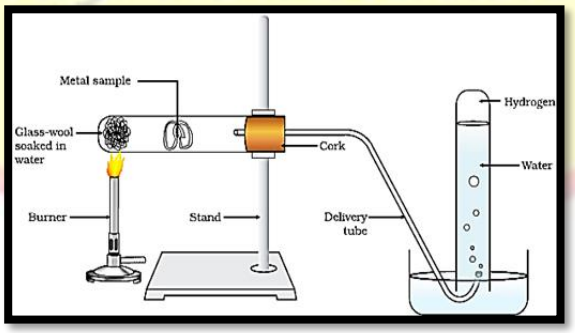
General Instructions:

1. This question paper consists of 39 questions in 3 sections. Section A is Biology, Section B is Chemistry and Section C is Physics.
2. 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	
1	In human respiratory system, when a person breathes in, the position of ribs and diaphragm will be: a) relaxed ribs and curve/dome shaped diaphragm. b) relaxed ribs and flattened diaphragm. c) lifted ribs and flattened diaphragm. d) lifted ribs and curve/dome shaped diaphragm.	**[1]**
2	In garden pea, violet colour flower is the dominant trait over white colour flower which is the recessive trait. When parent plant with violet coloured flowers (Vv) is crossed with a parent plant with white flowers, the possible percentage of occurrence of traits in the F1 progeny would be: a) 25% violet, 75% white b) 50% violet, 50% white c) 75% violet, 25% white d) 100% violet	**[1]**
3	The table below lists some information about the trophic levels of a food chain. **Trophic level** / **Number of organisms** / **Energy in the trophic level (arbitrary units)** P / 100 / 10,000 Q / 1 / 100 R / 1000 / 100,000 S / 10 / 1000 Which of the following food chains is correct? a) R→ Q → S → P b) P→ 0 → R → S c) P→ S → Q → R d) R→ P → S → Q	**[1]**

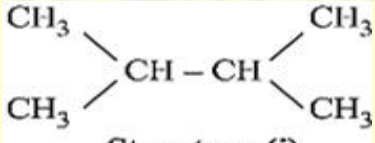
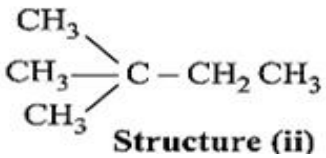
4	Match the following with correct response. **Column A** / **Column B** (i)Junction between neuron / (a)Thermoreceptors (ii) The largest cell in the human body / (b)Neuron (iii)Sense organs for smell / (c)Synapse (iv)Sense organs for touch / (d)Olfactory receptors a) (i) - (d), (ii) - (a), (iii) - (c), (iv) - (b) b) (i) - (b), (ii) - (d), (iii) - (a), (iv) - (c) c) (i) - (a), (ii) - (c), (iii) - (b), (iv) - (d) d) (i) - (c), (ii) - (b), (iii) - (d), (iv) - (a)	**[1]**
5	United Nations Environment Programme forged an agreement to a) control water pollution b) reduce CFC production c) control CO_2 emissions in the environment d) conserve biodiversity	**[1]**
6	In human digestive system the enzymes pepsin and trypsin are secreted respectively by: a) Stomach and pancreas b) Pancreas and gall bladder c) Stomach and salivary glands d) Pancreas and liver	**[1]**
7	Application of Abscisic acid on plants promotes: a) Formation of flowers b) Development of fruits c) Elongation of stem d) Wilting of leaves	**[1]**
8	**Assertion (A) :** Lumen of fallopian tube is lined by ciliated epithelium.. **Reason (R) :** Ciliated epithelium helps in moving the zygote towards uterus for implantation. a) Both A and R are true and R is the correct explanation of A. b) Both A and R are true but R is not the correct explanation of A. c) A is true but R is false. d) A is false but R is true.	**[1]**
9	**Assertion (A):** Accumulation of harmful chemicals is maximum in the organisms at the highest trophic level of a food chain. **Reason (R):** Harmful chemicals are sprayed on the crops to protect them from diseases and pests. a) Both A and R are true and R is the correct explanation of A. b) Both A and R are true but R is not the correct explanation of A. c) A is true but R is false. d) A is false but R is true.	**[1]**
10	List four points of significance of reproductive health in a society. Name any two areas related to reproductive health which have improved over the past 50 years in our country.	**[2]**
11	How is ozone formed in the higher levels of the atmosphere? **Damage to the ozone layer is a cause of concern.** Justify this statement. **OR**	**[2]**

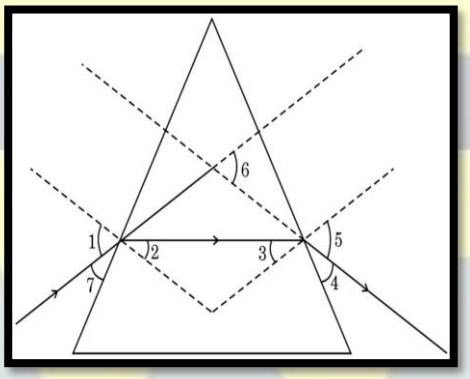
	Answer the following: 1.What is meant by non - biodegradable waste? Identify non - biodegradable wastes from the following: Empty packet of chips, empty plastic bottle of mineral water, empty paper box of sweets, empty tin of cold drink. 2.Pesticides added to the field are seen in increased amounts in the crop and in the birds that feed on them. What is this phenomenon called? 3.Which gas shields the surface of the earth from the harmful UV radiations from the sun? 4.Name the group of chemical compound which adversely affects the ozone layer?	
12	Why is chemical communication better than electrical impulses as a means of communication between cells in a multi-cellular organism?	**[2]**
13	In human beings, the statistical probability of getting either a male or female child is 50:50. Give a suitable explanation for this.	**[3]**
14	1.Define excretion. 2.Name the basic filtration unit present in the kidney. 3.Draw excretory system in human beings and label the following organs of excretory system which perform following functions; a.form urine. b. is a long tube which collects urine from kidney. c.store urine until it is passed out.	**[3]**
15	**Read the following text carefully and answer the questions that follow:** All human chromosomes are not paired. Most human chromosomes have a maternal and a paternal copy, and we have 22 such pairs. But one pair called the sex chromosomes, is odd in not always being a perfect pair. Women have a perfect pair of sex chromosomes. But men have a mismatched pair in which one is normal sized while the other is a short one. 1.In humans, how many chromosomes are present in a Zygote and in each gamete? (1) 2.A few reptiles rely entirely on environmental cues for sex determination. Comment. (1) 3.The sex of a child is a matter of chance and none of the parents are considered to be responsible for it. Justify it through flow chart only. (2) **OR** Why do all the gametes formed in human females have an X chromosome? (2)	**[4]**
16	Why are budding, fragmentation and regeneration all considered as asexual types of reproduction? With neat diagrams explain the process of regeneration in Planaria. **OR** 1.Why is the use of iodised salt advisable? Name the disease caused due to deficiency of iodine in our diet and state its one symptom. 2.How do nerve impulses travel in the body? Explain.	**[5]**

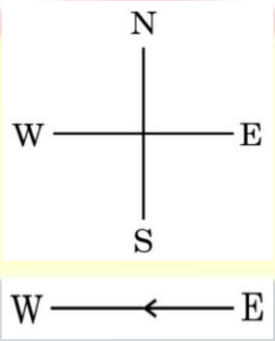
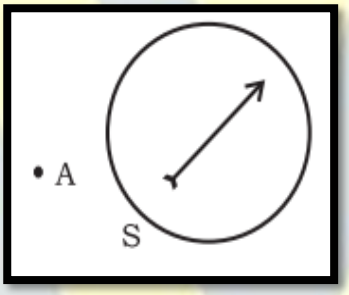
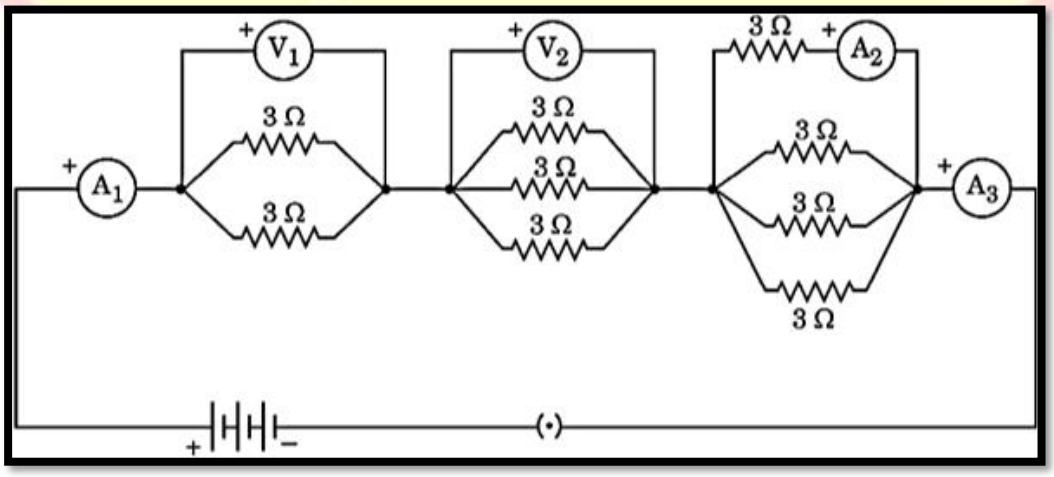
	SECTION B	
17	Find the incorrect statement: 1.The pH of the stomach is approximately 4.5 2. Plants grow well in natural soil 3.The pH of acid rain is nearly 5.6 4.The pH of rainwater is nearly 7 a) Statement (B) b) Statement (D) c) Statement (C) d) Statement (A)	**[1]**
18	Which of the given statement is correct or wrong: **Statement A:** Detergent with less branching in the molecule is degraded more easily than branched - chain detergents. **Statement B:** Soaps are 100% biodegradable. a) Both the statements A and B are true. b) Neither statement Anor statement B is true. c) Statement B is true;Statement A is false. d) Statement A is true;Statement B is false.	**[1]**
19	Consider the following compounds: 1.HCl 2. C_2H_5OH 3. $C_6H_{12}O_6$ 4.H_2SO_4 Which of these compounds do **not** conduct electricity in solution? a) I and IV b) III and IV c) I and II d) II and III	**[1]**
20	Match the following with the correct response: **Column A** / **Column B** (i) Welding / (a) Ethyl alcohol (ii) Fuel in a spirit lamp / (b) Ester (iii) Lime water turns milky / (c) Carbon dioxide (iv) Fruity smell / (d) Ethyne and oxygen a) (i) - (c), (ii) - (b), (iii) - (d), (iv) - (a) b) (i) - (a), (ii) - (c), (iii) - (b), (iv) - (d) c) (i) - (b), (ii) - (d), (iii) - (a), (iv) - (c) d) (i) - (d), (ii) - (a), (iii) - (c), (iv) - (b)	**[1]**
21	What is shown in the experiment given below:  a) Action of steam on a metal b) Reaction of metals with salt solutions c) Heating a salt sample on a spatula d) Testing the conductivity of a salt solution	**[1]**

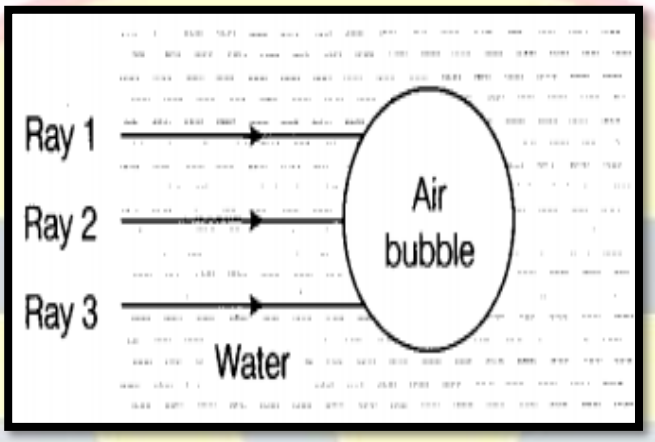
22	A hydrocarbon which can add two molecules of Br_2 is a) Both $H_2C = CH - CH = CH_2$ and $HC \equiv CH$ b) $HC \equiv CH$ c) $H_2C = CH - CH = CH_2$ d) $H_3C - CH = CH - CH_3$	**[1]**
23	A common feature observed in the crystals of washing soda, copper sulphate, gypsum and ferrous sulphate is that all a) exhibit acidic nature b) exhibit basic nature c) are coloured d) have fixed number of molecules of water of crystallisation in one formula unit of these salts.	**[1]**
24	**Assertion (A):** The aqueous solution of glucose and alcohol does not show acidic character. **Reason (R):** Aqueous solutions of glucose and alcohol do not give H^+ ions. a) Both A and R are true and R is the correct explanation of A. b) Both A and R are true but R is not the correct explanation of A. c) A is true but R is false. d) A is false but R is true.	**[1]**
25	What happens when zinc granules are added to dil NaOH solution? Also write the chemical equation for the reaction.	**[2]**
26	A compound Xon heating with excess conc. sulphuric acid at 443 K gives an unsaturated compound Y. Xalso reacts with sodium metal to evolve a colourless gas Z. Identify X, Yand Z. Write the equation of the chemical reaction of formation of Yand also write the role of sulphuric acid in the reaction. **OR** Write the balanced chemical equations for the following reactions and identify the type of reaction in each case. 1.In thermite reaction, iron (III) oxide reacts with aluminium and gives molten iron and aluminium oxide. 2. Magnesium ribbon is burnt in an atmosphere of nitrogen gas to form solid magnesium nitride.	**[3]**
27	Sample pieces of five metals A, B, C, D and E were added to the tabulated solutions separately. The results observed are shown in the table:	**[3]**

Metal	$FeSO_4$	$CuSO_4$	$ZnSO_4$	$AgNO_3$	$Al_2(SO_4)_3$
A	No Change	No Change	No Change	Coating on metal	No Change
B	Grey Deposit on metal	Brown Coating on metal	No Change	Coating on metal	No Change
C	No Change	No Change	No Change	No Change	No Change
D	No Change	--------	No Change	Coating on metal	No Change
E	--------	Brown Coating	New Coating	New Coating	No Change

	Based on the observations recorded in the table, answer the following: (1) Which is the most reactive metal? (2) Which is the least reactive metal? (3) What would be observed if metal D were added to a solution of copper (II) sulphate? (4) What would be observed if metal E were added to a solution of iron (II) sulphate? (5) Arrange the metals A, B, C, D and E in decreasing order oftheir reactivity?	
28	**Ethanol is a colourless liquid, soluble in water, and has various industrial and commercial uses. It is often produced by the fermentation of sugars.** 1.What happens when ethanol is heated with an alkaline solution of potassium permanganate? Name this type of reaction. 2.What is observed when a small piece of sodium is dropped into ethanol? Write the corresponding chemical equation. OR The consumption of alcohol can have serious health consequences. List any two harmful effects of drinking alcohol.	**[4]**
29	1.Name a commercially important carbon compound having functional group - OH and write its molecular formula. 2.Write chemical equation to show its reaction with a.Sodium metal b.Excess conc. sulphuric acid c.Ethanoic acid in the presence of an acid catalyst d.Acidified potassium dichromate 3.Also write the name of the product formed in each case. **OR** 1.Draw the structure of the following compounds: a.Butanoic acid b.Chloropentane 2.How are structure (i) and structure (ii) given below related to one another? Give reason to justify your answer.  **Structure (i)**  **Structure (ii)** Draw one more possible structure for above case. 3.Differentiate between saturated and unsaturated carbon compounds on the basis of their general formula.	**[5]**

	SECTION C	
30	Find the incorrect statement: 1.Convex mirrors are used by the dentist to see the large images of teeth of patients. 2.Convex mirrors are used as rear - view mirrors in cars, motorcycles, scooters,etc 3.Concave mirrors are used for shaving purpose. 4.Concave mirrors are used by doctors to focus light inside the ear or inside the mouth for medical examination. a) (B) b) (C) c) (A) d) (D)	**[1]**
31	In the given figure the angle of incidence and the angle of deviation respectively are:  a) 7 and 4 b) 1 and 5 c) 1 and 6 d) 7 and 6	**[1]**
32	**Assertion (A):** Force experienced by moving charge will be maximum if direction of velocity of charge is perpendicular to applied magnetic field. **Reason (R):** Force on moving charge is independent of direction of the applied magnetic field. a) Both A and R are true and R is the correct explanation of A. b) Both A and R are true but R is not the correct explanation of A. c) A is true but R is false. d) A is false but R is true.	**[1]**
33	State reasons to explain these observations. 1.Our eye is more sensitive to yellow colour but even then danger signals are red in colour. 2.Violet colour is seen at the bottom of the spectrumwhen light is displaced by a prism.	**[2]**
34	1.State the relation correlating the electric current flowing in a conductor and the voltage applied across it. Also draw a graph to show this relationship. 2.Find the resistance of a conductor if the electric current flowing through it is 0.35 A when the potential difference across it is 1.4 V. **OR** The values of the current I flowing in a given resistor for corresponding values of potential difference V across the resistor are given below: I (amperes) 0.5 1.0 2.0 3.0 4.0 V (volts) 1.6 3.4 6.7 10.2 13.2	**[2]**

	Plot a graph between V and I and calculate the resistance of that resistor.	
35	1.State the Right - hand thumb rule. 2.A steady current flows through a horizontal power line from east to west direction as shown in the figure. Apply right- hand thumb rule to determine the direction of magnetic field (i) at a point directly below it, and (ii) at a point directly above it. 	**[3]**
36	When one enters a less lighted room from a place of intense light, he is not able to see anything for sometime, but after sometime the things become somewhat visible. Explain how this happens?	**[3]**
37	A magnetic compass needle is placed in the plane of paper near point A as shown in the figure.  1.In which plane should a straight current - carrying conductor be placed so that it passes through A and there is no change in the deflection of the compass? 2.Under what condition is the deflection maximum and why?	**[3]**
38	**Read the following text carefully and answer the questions that follow:** Consider the following electrical circuit diagram in which nine identical resistors of 3 Ω each are connected as shown. If the reading of the ammeter A_1 is 1 ampere, answer the following questions: 	**[4]**

	1.What is the relationship between the readings of A_1 and A_3 ? Give reasons for your answer. (1) 2.What is the relationship between the readings of A_2 and A_3 ? (1) 3.Determine the reading of the voltmeter V_1. (2) **OR** Find the total resistance of the circuit. (2)	
39	An air bubble in water is shown in the figure. Three rays of light are incident on the air bubble.  The angle of incidence of ray 1 on the air bubble is greater than the critical angle. The angle of incidence of ray 2 on the air bubble is less than the critical angle. Ray 3 is perpendicular to the surface of the bubble. 1.In figure at the point where ray 1 meets the air bubble, mark a.the normal to the surface b.the angle of incidence 2.Complete the ray diagram to show how all three rays continue after they meet the air bubble. 3.Define refractive index of water. If the speed of light in air is 3×10^{8} ms $^{-1}$ and the speed of light in water is 2.2×10^{8} ms^{-1} . Calculate the refractive index of water. **OR** 1.Define principal axis of a lens. Draw a ray diagram to show what happens when a ray of light parallel to the principal axis of a concave lens passes through it. 2.The focal length of a concave lens is 20 cm. At what distance from the lens should a 5 cm tall object be placed so that its image is formed at a distance of 15 cm from the lens? Also calculate the size of the image formed.	**[5]**