SET-A

GWPS01A

G - W CLASSES, GONDIA
NEAR GIRI HOSPITAL, VIVEKANAND COLONY GONDIA
Mob. : 9673916351, 9422950376

GW PARIKSHA-01 (SET-A)

CLASS-X **SUBJECT-SCIENCE**

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

NAME- _____

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	Which one of the following is **not** an excretory product in plants? a) Dead cells b) CO_2 c) Resins and gums d) Starch	**[1]**
2	A cross between two tall pea plants resulted in offsprings having a few dwarf plants. The gene - combination of the parental plants must be a) Tt and Tt b) Tt and tt c) TT and tt d) TT and Tt	**[1]**
3	Green plants occupy the first trophic level in every food chain because they a) can synthesize food by photosynthesis. b) exist over a large area. c) have very less concentration of harmful chemicals. d) have to feed large number of herbivores.	**[1]**
4	Match the following with correct response. a) (i) - (a), (ii) - (c), (iii) - (b), (iv) - (d) b) (i) - (b), (ii) - (d), (iii) - (a), (iv) - (c) c) (i) - (d), (ii) - (a), (iii) - (c), (iv) - (b) d) (i) - (c), (ii) - (b), (iii) - (d), (iv) - (a) **Column A** / **Column B** (i)Cretinism / (a)Over secretion of growth hormone (ii)Gigantism / (b) Under secretion of ADH (iii)Exophthalmia / (c)Over secretion of thyroxin (iv)Diabetes insipidus / (d)Deficiency of thyroxin	**[1]**
5	In the food chains given below. Select the most efficient food chain in terms of energy: a) Phytoplankton→ Zooplankton → Small Fish → Big Fish b) Plants→ Man c) Grass→ Grasshopper → Frog → Snake d) Plants→ Deer → Lion	**[1]**
6	Consider the following statements about small intestine and select the one which is NOT correct: a) The small intestine receives secretions from liver and pancreas. b) The small intestine is the site of complete digestion of food. c) The villi of the small intestine absorb water from the unabsorbed food before it gets removed from	**[1]**

	the body via the anus. d) The length of the small intestine in animals differs as it depends on the type of food they eat.	
7	Which of the following statements is not true about a **bud** in **Hydra** ? a) It forms due to repeated cell division at one specific site. b) It detaches from the parent body as soon as it is produced. c) It is an outgrowth. d) It becomes a new independent individual.	**[1]**
8	**Assertion (A):** In reptiles, the temperature at which the fertilized eggs are kept decides the sex of the offsprings. **Reason (R):** Sex is not genetically determined in some animals. 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):** Use of jute bags for shopping reduces pollution. **Reason**(R) **:** Jute is biodegradable and its bag may be reused as and when needed. 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	Mention the functions of (a) Placenta (b) Fallopian tubes (c) Uterus and (d) Ovary in the human female reproductive system.	**[2]**
11	Indicate the flow of energy in a food chain operating in an ecosystem. Why is it uni - directional? Give reason. **OR** 1.Construct a food chain of four trophic levels operating in a grassland. If the energy available to the organisms of 4^{th} trophic level is 75 joules, how much energy was available with the organisms of the 2^{nd} trophic level for transfer to the next trophic level? Justify your answer. 2. Why is the flow of energy unidirectional in a food chain?	**[2]**
12	Why does the flow of signals in a synapse from axonal end of one neuron to dendritic end of another neuron take place but not in the reverse direction? Explain.	**[2]**
13	In one of Mendalian experiments, whenF_1 generation pea plants with round yellow seeds were self - pollinated, pea seeds with the following combinations were obtained in F_2 generation: <table><tr><td>**Seeds**</td><td>Round yellow</td><td>Round green</td><td>Wrinkled yellow</td><td>Wrinkled green</td></tr><tr><td>**Number**</td><td>800</td><td>275</td><td>268</td><td>90</td></tr></table> Analyse the result and describe the mechanism of inheritance of traits which explains the above results.	**[3]**
14	1.Why is there a difference in the rate of breathing between aquatic organisms and terrestrial organisms? Explain.	**[3]**

	2.Draw a diagram of human respiratory system and label - pharynx, trachea, lungs, diaphragm and alveolar sac on it.	
15	**Read the following text carefully and answer the questions that follow:** A student crossed pea plants having round and yellow seeds with pea plants having wrinkled and green seeds. He found that only one type of seeds were produced in the F_1 generation. When these F_1 generation pea plants were self - pollinated with each other, then in addition to the seed type of F_1 generation, some new types of seed combinations were also obtained in the F_2 generation. 1.Mention the dominant traits observed in F_1 generation. (1) 2.What are the new possible combinations of seeds likely to be observed in F_2 generation? (1) 3.Give reason why the traits which were not visible in the seeds of F_1 generation reappeared in the seeds of F_2 generation. Write the ratio of different types of seeds obtained in F_2 generation in this case. (2) **OR** What is meant by the terms (I) dominant, and (II) recessive traits? Explain. (2)	**[4]**
16	1.What are spores? On which structures are they formed? How do they overcome unfavourable conditions? Name the organism which multiplies with the help of these structures. 2.Give two reasons why some plants are grown by the method of vegetative propagation. List two methods used to grow plants vegetatively. **OR** 1.Define a reflex arc. Why have reflex arcs evolved in animals? Trace the sequence of events which occur, when you suddenly touch a hot object. 2.Name the part of nervous system which helps in communication between the central nervous system and other parts of the body. What are the two components of this system?	**[5]**
	SECTION B	
17	When a small amount of acid is added to water, the phenomena which occur are : 1.Dilution 2. Neutralisation 3. Formation of H_3O^+ ions 4. Salt formation The correct statements are: a) (C) and (D) b) (A) and (C) c) (B) and (D) d) (A) and (B)	**[1]**
18	Which of the given statement is correct or wrong: **Statement A:** Acetic acid freezes at 290K. **Statement B:** Acetic is also called as glacial acetic acid. a) Statement B is True; Statement A is false. b) Statement A is true;Statement B is false. c) Neither Statement A nor Statement B is true. d) Both the statements A and B are true.	**[1]**
19	Two metals zinc and tin are dissolved separately in definite proportions in molten copper (the primary metal) to obtain two different alloys respectively known as: a) Brass and Solder b) Bronze and Brass c) Solder and Bronze d) Brass and Bronze	**[1]**

20 Match the following with the correct response: **[1]**

Column A	Column B
(i) Copper is used in electrical appliances	(a) Hydrogen sulphide
(ii) Sodium is very reactive	(b) Good conductor
(iii) Silver is tarnished	(c) Graphite
(iv) A non-metal and a good conductor	(d) Stored in kerosene

a) (i) - (b), (ii) - (d), (iii) - (a), (iv) - (c)

b) (i) - (d), (ii) - (a), (iii) - (c), (iv) - (b)

c) (i) - (c), (ii) - (b), (iii) - (d), (iv) - (a)

d) (i) - (a), (ii) - (c), (iii) - (b), (iv) - (d)

21 Aqueous solutions of zinc sulphate and iron sulphate were taken in test tubes I and II by four students A, B, C and D. Metal pieces of iron and zinc were dropped in the two solutions and observations made after several hours were recorded in the form of table as given below: The correct reporting has been made in observations: **[1]**

Student	Metal	Solution	Colour change of solution	Deposit/Coating obtained
A	Fe	$ZnSO_4$	Turned green	Silvery grey coating
	Zn	$FeSO_4$	No change	No change
B	Fe	$ZnSO_4$	No change	Black deposit
	Zn	$FeSO_4$	Colour faded	Grey coating
C	Fe	$ZnSO_4$	No change	No change
	Zn	$FeSO_4$	Turned colourless	Black deposit
D	Fe	$ZnSO_4$	No change	Grey deposit
	Zn	$FeSO_4$	No change	Black deposit

a) Student B b) Student A c) Student C d) Student D

22 Select saponification reaction from the following: **[1]**

a) $C_4H_9OH \xrightarrow[KMnO_4]{Alkaline} C_3H_7COOH$

b) $CH_3COOC_2H_5 + NaOH \rightarrow CH_3COONa + C_2H_5OH$

c) $2C_2H_5OH + 2Na \rightarrow 2C_2H_5COONa + H_2$

d) $CH_3COONa + NaOH \rightarrow CH_4 + Na_2CO_3$

23 An aqueous solution **A** turns phenolphthalein solution pink. When another aqueous solution **B** is added to the pink solution, the pink colour disappears. Now when a few drops of solution **A** are added to this reaction, the mixture appears pink again. The respective changes in the nature of the solution are from: **[1]**

a) acidic→ basic → basic b) acidic→ basic → acidic

c) basic→ acidic → acidic d) basic→ acidic → basic

24 **Assertion (A):** Baking soda creates acidity in the stomach. **[1]**

Reason (R): Baking soda is alkaline.

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.

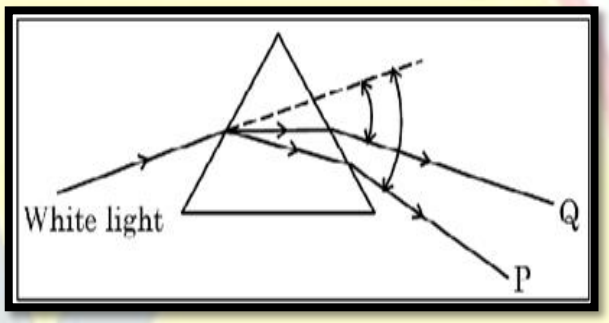
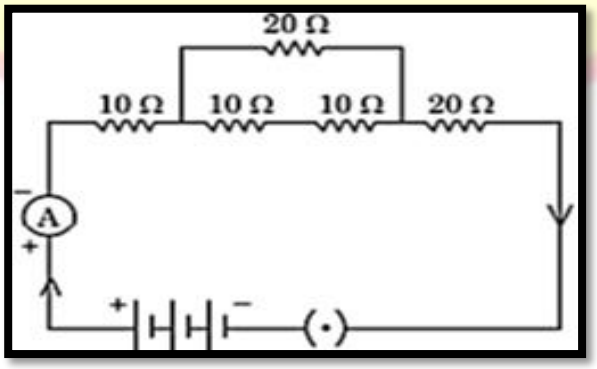
25 Kedar heated a few crystals of copper sulphate in a dry boiling tube. **[2]**

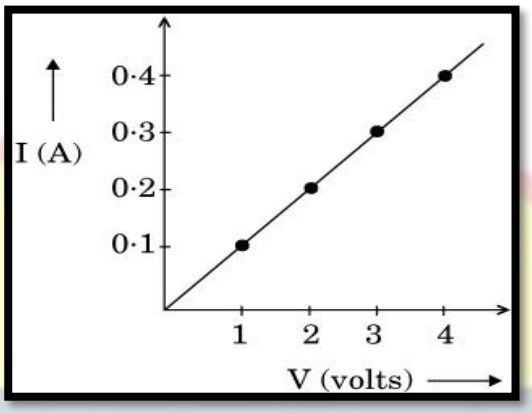
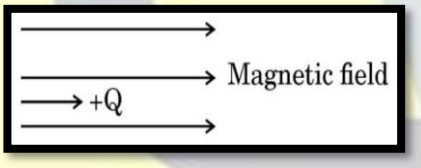
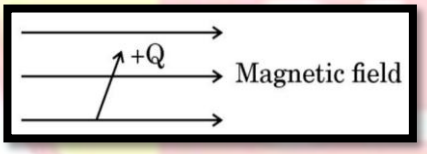
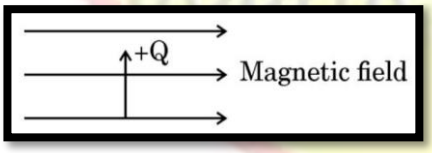
1.What will be the color of the copper sulphate after heating?

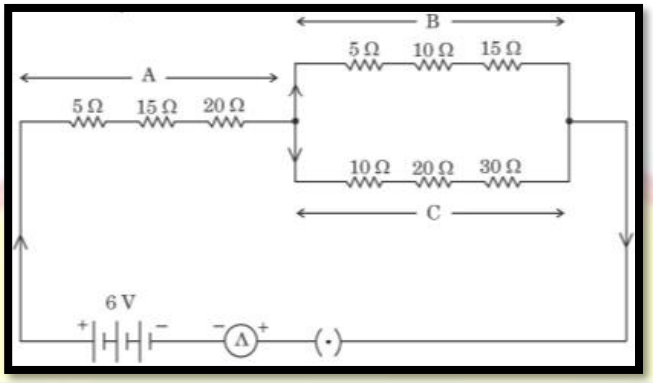
2.Will you notice water droplets in the boiling tube?

3.Where have these come from?

26	1.Define the term decomposition reaction. Write one chemical equation each for decomposition reaction where energy is supplied in the form of heat, light or electricity. 2.Decomposition of vegetable matter into compost is considered an exothermic reaction. Why? **OR** Give reason and name the type of chemical reaction taking place in each case: 1.Dissolution of ammonium chloride in water leads to cooling of the glass apparatus used for dissolutions. 2.Silver chloride powder which is white in colour, turns grey when kept in sunlight. 3.Blue colour of copper sulphate solution fades when an iron nail is dipped inside the solution.	**[3]**
27	Write the electron - dot structures of (i) sodium, and (ii) oxygen. Using these structures, show the formation of sodium oxide. Mark the anion and cation present in this compound. (At. No.- Sodium = 11 and Oxygen = 8)	**[3]**
28	**Read the following text carefully and answer the questions that follow:** Redox reactions are those reactions in which oxidation and reduction occur simultaneously. A redox reaction is made up of two half reactions. In the first half reaction, oxidation takes place and in second half reaction, reduction occurs. Oxidation is a process in which a substance loses electrons and in reduction, a substance gains electrons. The substance which gains electrons is reduced and acts as an oxidising agent. On the other hand, a substance which loses electrons is oxidised and acts as a reducing agent. 1.Illustrate where oxidation and reduction occurs together with an example? (1) 2.What do you mean by oxidising agent and reducing agent? (1) 3.For the given reaction, identify the oxidation and reduction parts. (2) $ZnO + CO \rightarrow Zn + CO_2$ **OR** In the following reaction, which substance is reduced? (2) $PbS + 4H_2O_2 \rightarrow PbSO_4 + 4H_2O$	**[4]**
29	1.What is saponification? Differentiate between soaps and detergents on the basis of the following: a. Their chemical composition b. Their mechanism in hard water 2.Explain the formation of micelles between oily dirt and soap molecules. Also draw its diagram. **OR** 1.Define the term "homologous series of carbon compounds". Write a homologous series of compounds having functional group - CHO. 2.Design an experiment to distinguish between an alcohol and a carboxylic acid. Also write chemical equation for that case in which reaction occurs.	**[5]**

	SECTION C	
30	Which of the following statement is incorrect? 1.A ray of light passing from an optically rarer medium to an optically denser medium bends away from the normal. 2. A ray of light passing from an optically denser medium to an optically rarer medium bends away from the normal. 3.A ray of light passing from an optically rarer medium to an optically denser mediumbends toward the normal. 4.A ray light passing from an optically denser medium to an optically rarer mediumbends towards the normal. a) A, B and D b) B and C c) A and C d) A and D	**[1]**
31	In the following diagram showing dispersion of white light by a glass prism, the colours **P** and **Q** respectively are - a) Violet and Red b) Orange and Green c) Red and Blue d) Red and Violet 	**[1]**
32	**Assertion (A):** The strength of the magnetic field produced at the centre of a current - carrying circular coil increases on increasing the radius of the circular coil. **Reason (R):** Magnetic field strength is inversely proportional to the radius of the circular coil. 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	Write the conditions for observing a rainbow. Show, by drawing a suitable diagram, how one understands the formationof a rainbow?	**[2]**
34	Calculate the equivalent resistance of the following electric circuit:  **OR**	**[2]**

	In the experiment to study the dependence of current (I) on the potential difference (V) across a resistor, a student obtained a graph as shown. 1.What does the graph depict about the dependence of current on the potential difference? 2. Find the current that flows through the resistor when the potential difference across it is 2.5 V. 	
35	1.Name and state the rule which determines the force on a current carrying conductor placed in a uniform magnetic field. 2.Consider the following three diagrams in which the entry of a positive charge (+Q) in a magnetic field is shown. Identify giving reason the case in which the force experienced by the charge is (i) maximum, and (ii) minimum. A .  b.  c. 	**[3]**
36	A person has to keep reading material much beyond 25 cm (say at 50 cm) from the eye for comfortable reading. Name the defect of vision he is suffering from. List two causes responsible for arising of this defect. Draw a labelled diagram showing correction of this defect using eye - glasses. Are these glasses convergent or divergent of light?	**[3]**
37	Answer the following questions for a case in which a current carrying conductor is placed in a uniform magnetic field: 1.List three factors on which the magnitude of the force acting on the conductor depends.	**[3]**

	2.When is the magnitude of force on the conductor maximum? 3.Name the rule which helps in determining the direction of force on the conductor and give its one application.	
38	Study the following electric circuit in which the resistors are arranged in three arms A, B and C:  1.Find the equivalent resistance of arm A. (1) 2.Calculate the equivalent resistance of the parallel combination of the arms B and C. (1) 3.Determine the current that flows through the ammeter. (2) **OR** Determine the current that flows in the ammeter when the arm B is withdrawn from the circuit. (2)	**[4]**
39	1.Define power of a lens and write its SI unit. Name the type of lens whose power is negative. 2.A convex lens forms a real and inverted image of finite size at a distance of 50 cm from it. Where is the object placed in front of the lens? Give all possible positions of the object stating reason in each case. 3.Draw labelled ray diagram for any one position of the object mentioned in (b) above. **OR** 1.A concave mirror of focal length 10 cm can produce a magnified real as well as virtual image of an object placed in front of it. Draw ray diagrams to justify this statement. 2. An object is placed perpendicular to the principal axis of a convex mirror of focal length 10 cm. The distance of the object from the pole of the mirror is 10 cm. Find the position of the image formed.	**[5]**

SPACE FOR ROUGH WORK