THE VILLAGE
INTERNATIONAL SCHOOL
"We Nurture Dreams"

GRADE: X DATE :04/12/23	Model Examination 1 (2023-24) SCIENCE (Subject code 086)	MARKS: 80 TIME : 3 hours

General Instructions:

i. *This question paper consists of 39 questions in 5 sections.*
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.*
iii. *Section A consists of 20 objective type questions carrying 1 mark each.*
iv. *Section B consists of 6 Very Short questions carrying 02 marks each. Answers to these questions should be in the range of 30 to 50 words.*
v. *Section C consists of 7 Short Answer type questions carrying 03 marks each. Answers to these questions should be in the range of 50 to 80 words.*
vi. *Section D consists of 3 Long Answer type questions carrying 05 marks each. Answer to these questions should be in the range of 80 to 120 words.*
vii. *Section E consists of 3 source-based/case-based units of assessment of 04 marks each with sub-parts.*

SECTION A

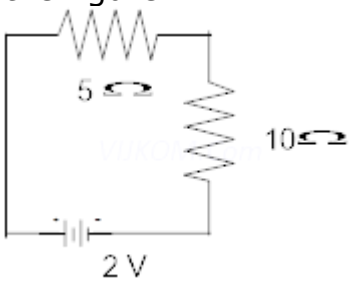
Select and write the most appropriate option out of the four options given for each of the questions 1 - 20. There is no negative mark for incorrect response.

Q.No.	Questions	Mark
1	On adding dilute HCl to copper oxide powder, the solution formed is blue green. Predict the new compound formed: a)Cu(II) chloride b)Cu(I) chloride c)Cu(I) oxide d)Cu(II) oxide	1
2	An example of an amphoteric oxide is: a) CO2 b)Al2O3 c)Mg O d) CaO	1
3	Name the gas evolved when HCl reacts with sodium hydrogen carbonate. a)H2 b)O2 c)CO2 d)Cl2	1

4	Which is true about ionic compound? a) They are insoluble in water. b) They have high melting and boiling points. c) They do not conduct electricity when dissolved in water. d) The force of attraction between the ions is very small.	**1**
5	A metal which does not react with cold as well as hot water but react with steam: a) Cu b) Mg c) Fe d) Na	**1**
6	Ethanol react with sodium and forms two products. These are: a)sodium ethanoate and hydrogen b)sodium ethanoate and oxygen c)sodium ethoxide and hydrogen d) sodium ethoxide and oxygen	1
7	Which one of the following is not in liquid state at 10 o C? a) H_2O b) C_2H_5OH c) glacial acetic acid d) propanone	1
8	The opening and closing of the stomatal pore depend upon: (a) Oxygen (b) Temperature (c) Water in the guard cells (d) Concentration of CO_2	1
9	When we touch the leaves of the "touch-me-not" plant, they begin to fold up and droop. How does the plant communicate the information of touch? (a) The plant uses electrical signals to transfer information from the external environment to cells. (b) The plant uses electrical-chemical signals to transfer information from cell to cell. (c) The plant uses electrical-chemical signals to transfer information from tissue to specialized cells. (d) The plant uses electrical signals to transfer information from cells to specialized tissues.	**1**
10	Name the hormones secreted by the following endocrine glands and specify one function of each: (a) Thyroid (b) Pituitary (c) Pancreas (d)Thymus	**1**
11	Height of a plant is regulated by: a) DNA which is directly influenced by growth hormone. b) Genes which regulate the proteins directly. c) Growth hormones under the influence of the enzymes coded by a gene. d) Growth hormones directly under the influence a gene	**1**
12	The procedure used for cleaning the blood of a person by separating urea from it is called: (a) osmosis (b) filtration (c) dialysis (d) double circulation	**1**

13	When an object is placed in front of a convex mirror, the image formed is: (a) Real, inverted, and enlarged (b) Real, inverted, and reduced (c) Virtual, erect, and enlarged (d) Virtual, erect, and reduced	**1**
14	Twinkling of stars is due to: a) Dispersion of light by water droplets b) Atmospheric refraction of light by different layers of varying refractive indices c)scattering of light by dust particles d)internal reflection of light by water droplets	**1**
15	Which of the following features relates to biodegradable substances? a) Broken down by biological processes b) Remain inert c) Persist in environment for long time d) May harm the ecosystem	**1**
16	What is the order of the waste management hierarchy, from most to least favoured? a) Prevention-Recycle-Reuse-Disposal b) Prevention-Reuse-Disposal-Recycle c) Prevention-Disposal-Reuse-Recycle d) Prevention-Reuse-Recycle-Disposal	**1**
	Question No. 17 to 20 consist of two statements – Assertion (A) and Reason (R). Answer these questions 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.	
17	Assertion: Copper vessels get covered with green coating in moisture. Reason:It is because of the formation of copper carbonate.	**1**
18	Assertion: Spores are unicellular bodies. Reason: The parent body simply breaks up into smaller pieces on maturation	**1**
19	Assertion: When light passes from a rarer medium to a denser medium, it bends towards the normal. Reason: The change in speed of light causes it to bend towards the normal when it enters a denser medium.	**1**

20	Assertion: Ozone is formed in the upper atmosphere by O2 in presence of UV radiations. Reason: Ozone depletion will lead to UV rays reaching earth which may cause skin cancer	**1**
	Section B **Question No. 21 to 26 are very short answer questions**	
21	Explain in brief the cleansing action of soap.	**2**
22	a) Name two metals which produce hydrogen gas when treated with nitric acid. b) Why metals donot produce hydrogen gas when treated with HNO3?	**2**
23	(a) Name four types of metabolic wastes produced by humans. OR Why do arteries have thick and elastic walls whereas veins have valves?	**2**
24	i) Define refractive index. ii) If the refractive index of water is 4/3 and that of glass is 3/2, what will be the refractive index of glass with respect to water?	**2**
25	i) What is the maximum resistance which can be made using five resistors each of 1/5 Ω? ii) Calculate the amount of charge flowing in a wire if it draws a current of 2A in 10 seconds. OR What is a solenoid? Draw a sketch to show the magnetic field pattern produced by a current-carrying solenoid.	**2**
26	In the following food chain, plants provide 500 J of energy to rats. How much energy will be available to hawks from snakes? Plants → Rats → Snakes → Hawks	**2**
	SECTION C **Question No. 27 to 33 are short answer questions**	
27	What is meant by refining?Describe the electrolytic refining of copper using a neat labelled diagram.	**3**
28	The atomic number of different elements are given. 23 35 A B 11 17 a) Write the electronic configuration of A and B. b) Which is a metal and non-metal? c)Draw the electron dot structure of the compound formed when A combines with B.	**3**

29	In the preparation of NaOH,a gas "X" is formed as a bye product. This gas "X" reacts with lime water to forms a compound "Y" which is used as bleaching powder. Identify **X** and **Y**. Give the chemical equations of both the reactions.	**3**
30	(a) Why is nutrition necessary for the human body? (b) What causes movement of food inside the alimentary canal? (c) Why is the small intestine in herbivores longer than in carnivores?	**3**
31	A student is unable to see clearly the words written on the black board placed at a distance of approximately 3 m from him. Name the defect of vision the boy is suffering from. State the possible causes of this defect and explain the method of correcting it.	**3**
32	i) Define Joule's law. ii) Calculate the heat energy produced in resistance of 5 Ω when 3 A current flows through it for 2 minutes.	**3**
33	Calculate (i) effective resistance (ii) current (iii) Potential difference across 10 Ω resistor of a circuit shown in the figure. 	**3**
	SECTION D **Question No. 34 to 36 are long answer questions**	
34	a) Write in detail the factors by which carbon forms most number of compounds. b) Write any 2 differences between soap and detergent. c)What happens when i) zinc granules are treated with dilute H2SO4 and HCl? ii)zinc granules are treated with NaOH? OR c)i) Why the reactivity of Al decreased when dipped in diute HNO3? ii)NaCl is not a conductor of electricity in solid state but a good conductor in molten and aqueous state.Why?	**2+1+1+1**
35	Draw a sectional view of human female reproductive system and label the part where:	**5**

	1. eggs develop. 2. fertilization takes place. 3. a fertilized egg gets implanted. Describe, in brief, the changes the uterus undergoes 4. to receive the zygote. 5. if zygote is not formed OR a) Name the hormones secreted by the following endocrine glands and specify one function of each: (a) Thyroid (b) Pituitary b) A squirrel is in a scary situation. Its body has to prepare for either fighting or running away. State the immediate changes that take place in its body so that the squirrel is able to either fight or run c)Why is chemical communication better than electrical impulses as a means of communication between cells in multicellular organisms?	
36	The power of a lens is +4D. Find the focal length of this lens. An object is placed at a distance of 50 cm from the optical centre of this lens. State the nature and magnification of the image formed by the lens and also draw a ray diagram to justify your answer. OR An Object is placed 10 cm from a concave mirror of radius of curvature 15 cm. Calculate the position, nature and magnification of the image formed and also draw a ray diagram to justify your answer.	**5**
	SECTION E Question No. 37 to 39 are case-based/data-based questions with 2 to 3 short sub-parts. Internal choice is provided in one of these sub-parts.	
37	Hydrocarbons are compounds containing carbon and hydrogen. They are classified into alkanes, alkenes and alkynes. Alkanes are called saturated hydrocarbons and the other two as unsaturated hydrocarbons.	**4**

	Two organic compounds A and B having molecular formula C2H6 and C2H4 respectively. a)Which one is most likely to form addition reaction? Reason. b)How can you convert B into A? c)How can B be prepared from ethanol? OR c)How ethanol can be converted to ethanoic acid? d)Write an example of a substitution reaction. (Write equations required.)	
38	Pooja has green eyes while her parents and brother have black eyes. Pooja's husband Ravi has black eyes while his mother has green eyes and father has black eyes. (a) On the basis of the above given information, is the green eye colour a dominant or recessive trait? Justify your answer. (b) What is the possible genetic makeup of Pooja's brother's eye colour? (c) What is the probability that the offspring of Pooja and Ravi will have green eyes? Also, show the inheritance of eye colour in the offspring with the help of a suitable cross. OR (d) 50% of the offspring of Pooja's brother are green eyed. With help of cross show how this is possible.	**4**
39	In an experiment, Pooja used a triangular glass prism and projected a narrow beam of white light source from one side of the surface of the prism. She placed a screen on the other side and saw many colours appearing as patches on the screen. But when she used a red light source, she could see only a red patch on the screen. a) Name the phenomenon that she was trying to demonstrate. b) Draw a diagram to show this phenomenon. c) Which colour deviates the most? d) Which colour has maximum speed?	**4**
	THE END	