

**GENIUS HIGH SCHOOL :: BHUVANAGIRI**

**PRE-BOARD - I**

**Class : X**

**Subject : GENERAL SCIENCE**

**Time: 3Hrs**

**Max marks: 30**

**General Instructions:**

**Read the following instructions very carefully and strictly follow them :**

(i) This question paper comprises **three** sections—A, B, and C. There are **30** questions in the question paper. All questions are compulsory.

(ii) **Section A** : Question no. **1 to 20** all questions or part thereof are of **one** mark each. These questions comprise Multiple Choice Questions (MCQ)

(iii) **Section B** : Question no. **21 to 30** are short answer type questions, carrying **3** marks each. Answer to these questions should not exceed **50 to 60** words.

(iv) **Section C** : Question no. **31 to 36** are long answer type questions, carrying **5** marks each. Answer to these questions should not exceed **80 to 90** words.

(v) Answers should be brief and to the point. Also the above mentioned word limit be adhered to as far as possible.

**SECTION - A**

1. What do you understand by reflection of light?
2. What happens to the temperature of water if few drops of concentrated sulphuric acid is added to it?
3. Write one difference between artery and vein.
4. What is the nature of the image formed by a concave mirror if the magnification produced by the mirror is +3?
5. Is burning of a candle, physical change or a chemical change.
6. In a concave mirror where should we keep the object so that the image formed will be real, inverted and enlarged?
7. Write the balanced equation for the process of photosynthesis

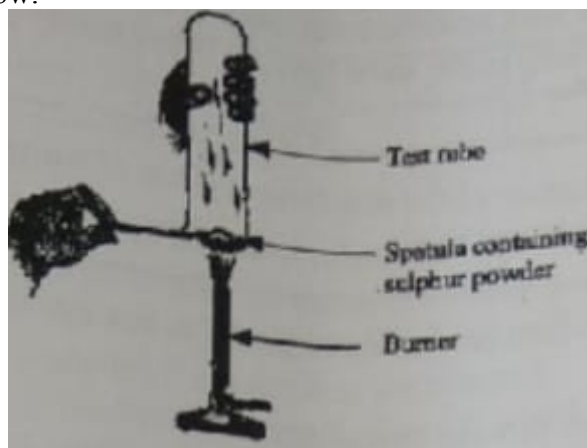
**(OR)**

When do desert plants take up carbon dioxide and perform photosynthesis?

8. Name the physical quantities which are indicated by the direction of thumb and forefinger in Fleming's right hand rule.
9. Rearrange the following according to their ascending trophic level in a food chain hawk, Grass, snake, rabbit.
10. In a conical flask when dilute sulphuric acid is poured on zinc granules. On touching the flask, do you feel any change in its temperature?
11. What is emulsification of fats?
12. Write the chemical name and chemical formula of baking soda.
13. Which colour of white light travel (a) fastest (b) slowest (c) slowest in glass prism
14. State the method used for growing rose plants.
15. When two resistance of  $12\Omega$  and  $4\Omega$  are connected in parallel, the combined resistance is  
a)  $16\Omega$       b)  $3\Omega$       c)  $8\Omega$       d)  $10\Omega$
16. If the height of the object is 20cm and that of image is 80cm, the magnification is  
a) 100      b) 4      c) 40      d) 60
17. Write the scientific name of garden pea and human.
18. Name and state the law which is kept in mind while we balance a chemical equation
19. Identify the basic salt from the following salts  
a)  $\text{Na}_2\text{CO}_3$       b)  $\text{NH}_4\text{Cl}$       c)  $\text{NaNO}_3$       d)  $\text{KCl}$
20. Which of the following statements about the autotrophs is incorrect?  
a) They synthesis carbohydrates from carbon dioxide and water in presence of sunlight and chlorophyll.  
b) They store carbohydrates in the form of starch  
c) They convert carbon dioxide and water into carbohydrates in the absence of sunlight.  
d) They constitute the first trophic level in food chains

## SECTION - B

21. (a) In humans if gene B gives brown eyes and gene b gives Blue eyes. What will be the colour of the persons having following combination of genes:  
(i) Bb            (ii) bb            (iii) BB  
(b) Explain which characteristic trait is inherited in the above question.
22. Explain the meanings of malleable and ductile.
23. The length of a conductor is 40cm and area of cross section is 4 sq.mm. If it's resistance is  $0.8\Omega$ . What is the value of it's specific resistance.
24. State two reasons for the following facts:-  
a) Sulphur is a non-metal  
b) (ii) Magnesium is a metal  
One of the reasons must be supported with a chemical equation.
25. (i) Write the electronic-dot structure for sodium  
(ii) Show the formation of  $\text{Na}_2\text{O}$  by the transfer of electrons
26. a) State the condition under which a light ray passes undeviated through a lens.  
b) For the same angle of incidence of  $45^\circ$ , the angle of refraction in three transparent media A,B,C are  $25^\circ$ ,  $30^\circ$  and  $35^\circ$  respectively. In which medium is the speed of light minimum and in which medium is it maximum?  
c) What are the two factors on which lateral displacement of an emergent ray from a glass slab depends?
27. Rani took sulphur powder on a spatula and heated it. She collected gas evolved by inverting a test tube over it, as shown in figure below.



- (a) What will be the action of gas on  
(i) Dry litmus paper  
(ii) Moist litmus paper  
(b) Write a balanced equation for the reaction taking place.
28. Define 1 volt. Express it in terms of SI unit of work and charge. Calculate the amount of energy consumed in carrying a charge of 1 coulomb through a battery of 3 V.
29. a) What are the differences between autotrophic nutrition and heterotrophic nutrition?  
b) Where do plants get each of the raw materials required for photosynthesis?

## SECTION - C

30. Draw the ray diagram in each case to show the position and nature of the image formed when the object is placed.  
(i) At the centre of curvature of a concave mirror  
(ii) Between the pole P and focus F of a concave mirror  
(iii) At 2F of a convex lens  
(iv) In front of a concave lens.

(OR)

- (a) What is dispersion of white light? What is the cause of such dispersion? Draw a diagram to show the dispersion of white light by a glass prism?
- (b) A glass prism is able to produce a spectrum when white light passes through it but a glass slab does not produce any spectrum. Explain why is it so?

31. (a) Draw a diagram to show open stomatal pore and label on it.  
 i) Guard cells ii) chloroplast  
 b) state two functions of stomata  
 c) How do guard cells regulate the opening and closing of stomatal pore?

(OR)

- (a) Draw a diagram depicting Human Alimentary Canal and label on it  
 i) Gall bladder b) Liver c) Pancreas  
 (b) State the roles of liver and pancreas  
 (c) Name the organ which performs the following functions in humans.  
 (d) Absorption of digested food  
 (e) Absorption of water

32. a) What pH do you expect for the following salt solutions and why?  
 b) Alcohol and glucose also contain hydrogen but do not conduct electricity. Why?

(OR)

- a) Why is tartaric acid added into baking soda to get baking powder?  
 b) Why does tooth decay start when the pH of the mouth is lower than 5.5?  
 c) How would you say the copper sulphate crystals contain water of crystallisation?

33. Read the following and answer any four questions from 34(i) to 34 (v)

Visit any town or city and we are sure to find heaps of garbage all over the place. Visit any place of tourist interest and we are sure to find out the place littered with empty wrappers.

For the waste generated at home, it's advisable to follow a four bin system. This means simply segregate your house waste. Put kitchen waste or organic waste in green bin, Inert waste (waste which is neither chemically or biologically reactive and will not decompose like diapers etc.) in a black bag, a white bin for waste that is recyclable like milk packets, oil, plastics and a black bin for all the hazardous waste materials.



- 34(i) Some non-biodegradable substances in the given picture are :-

- a) Fruit peel, milk bags, paints, cans  
 b) Disposable plates, batteries, diapers, paints  
 c) Cans, sanitary napkins, diapers, banana peels  
 d) All kitchen waste, disposable cups, paints

34(ii) Non-degradable substances may be :-

- a) inert
- b) Persist in the environment for a long time
- c) harm the various members of the ecosystem
- d) All of those

34(iii) The action of bacteria or other saprophytes on many human made materials like plastics can be compared with the action of enzymes in our body on the food eaten. This statement indicates:

- a) Why do we get energy from food.
- b) How enzymes are specific in action
- c) Why we will not get any energy if we try to eat coal!
- d) All of these

34(iv) The harmful effects of biodegradable substances on environment are :-

- i) They produce smell during decomposition process
- ii) They may produce some harmful gases such as Ammonia, Methane and carbon dioxide ate.
- iii) They may further cause global warming

The statements which are correct are:-

- a) Only (i) and (ii)
- b) Only (i) and (iii)
- c) (i), (ii) and (iii)
- d) only (ii) and (iii)

34(v) Chemicals like \_\_\_\_\_ can harm the ozone layer. This Chemical is

- a) CFC
- b) HCl
- c) CO<sub>2</sub>
- d) H<sub>2</sub>

35. In the following table, are given eight elements A,B,C,D,E,F,G AND H(here letters are not the usual symbols of the elements) of the Modern Periodic Table with the atomic numbers of the elements in parenthesis.

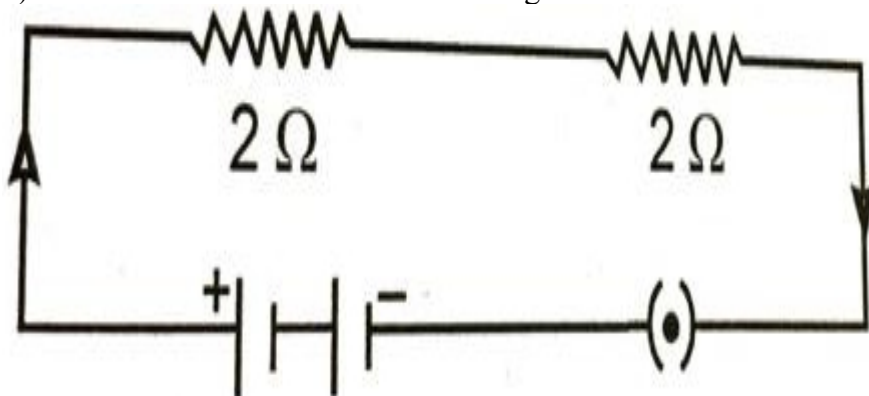
Period	Group 1	Group 2
2	A (3)	E (4)
3	B (11)	F (12)
4	C (19)	G (20)
5	D (37)	h (38)

- 1. What is the electronic configuration of F?
- 2. What is the number of valence electrons in the atom of F?
- 3. Write the size of the atoms of E, F, G and H in decreasing order,
- 4. State whether F is a metal or a non-metal.
- 5. Out of the three elements B, E and F, which one has the biggest atomic size?

36.a) When do you say the the resistance of the wire 1Ω.

b) What happens to the resultant resistance of a conductor when the length of the conductor is reduced to half of its original length?

d) What is the effective resistance in the given circuit?



e) Draw a schematic diagram of an electric circuit consisting of a battery of two cells each of 1.5V, 5 Ω, 10Ω,15Ω resistors and a plug key, all connected in series.