

**St. Ursula Girls' High School & Junior College, Nagpur**  
**FINAL EXAMINATION 2020**

Class : IX (A,D,E,F,G)

Time : 2 hrs.

Subject : Science I

Marks : 40

- Note:**
- 1) All Questions are compulsory.
  - 2) Draw scientifically correct labelled diagram whenever necessary.
  - 3) Start writing each main question on new page
  - 4) Figures to the right indicate full marks.
  - 5) For MCQ evaluation would be done for first attempt only.

**Q1.A) a) State whether the following statements are true or False. If false then rewrite the correct statements. (1)**

i) If the image is virtual, the height of the image is negative.

**b) Complete the analogy (1)**

i) High density : Compression, low density : \_\_\_\_\_

**c) Name the following**

i) A safe hair dye : \_\_\_\_\_

ii) The most harmful chemical in deodorant. \_\_\_\_\_

**d) Find the odd man out.**

i) Coke, diamond, graphite, fullerene.

ii) Draw the following letters as they would be seen reflected in a plane mirror : (1)

B G N S K

**Q1 B) Choose the correct alternative :- (5)**

i) Mirror used by a dental surgeon is

a) Plane

b) Concave

c) Convex

d) Convex & Concave

ii) What is the measure of angle made by the reflected ray with the reflecting surface when the angle of incidence is  $30^\circ$ ?

a)  $0^\circ$

b)  $30^\circ$

c)  $90^\circ$

d)  $60^\circ$

iii) Which are the gases formed in a biogas plant?

a)  $\text{CO}_2$ ;  $\text{NH}_4$

b)  $\text{CH}_4$ ;  $\text{CO}_2$

c)  $\text{CO}_2$ ;  $\text{O}_2$

d)  $\text{N}_2$ ;  $\text{S}_2$

iv) \_\_\_\_\_ is used for disinfection of drinking water.

a) Copper sulphate

b) Alum

c) Bleaching powder

d) Sodium carbonate

v) The most accurate method of measuring the pH of a solution is \_\_\_\_\_

a) Universal indicator

b) pH paper

c) pH meter

d) All of these.

**Q. 2 A) Give scientific reason (Any 2) (4)**

i) Graphite is a good conductor of electricity.

ii) Concave mirror are used in solar devices.

iii) The roof of a movie theatre and a conference hall is curved.

**Q. 2 B) Answer the following (Any 3) (6)**

- i) An object is placed at 50 cm from a concave mirror of radius of curvature 60 cm. Find the image distance. What is the nature of the image.
- ii) Explain how a bat can find its way in the dark.
- iii) Distinguish between Diamond and graphite.
- iv) Complete the following chemical reactions :-
  - a) \_\_\_\_\_ + \_\_\_\_\_  $\rightarrow$  CO<sub>2</sub> + 2H<sub>2</sub>O + heat
  - b) Na<sub>2</sub>CO<sub>3</sub> + H<sub>2</sub>O + CO<sub>2</sub>  $\rightarrow$  \_\_\_\_\_
- v) Classify the following substances into groups like acids, bases, metals, non-metals (iron, aluminium, water, baking soda, sulphur, curds)

**Q. 3 Answer the following (Any 5) (15)**

- i) Draw a well-labelled diagram of a biogas plant.
- ii) An object of size (height) 7 cm is placed at 25 cm in front of a concave mirror of focal length 15 cm. At what distance from the mirror should a screen be placed so that we can get a sharp and clear image? Find the nature and size (height) of the image.
- iii) Write notes on SONAR
- iv) How will you verify the properties of carbon dioxide?
- v) State the characteristic properties of gamma rays.
- vi) State the different positions of a source of light with respect to a concave mirror in
  - a) a torch light
  - b) a projector lamp
  - c) a floodlight
- vii) Write the uses of ceramic
- viii) Hydrogen in the two bottles is 12 gms and 48 gms respectively. In which bottle will the sound travel faster? How many times as fast as the other?

**Q. 4 Attempt any one of the following (5)**

- i) Read the following paragraph and answer the questions given below it.

In general when light falls on a body, part of it is reflected, part is absorbed and the remaining part is transmitted. To what extent it is reflected / absorbed / transmitted depends upon a number of factors such as the material, physical state (Solid, liquid, gas) temperature of the body and frequency of the light. Part of light absorbed may be emitted by the body. Absorption of light also results in rise in temperature of the body, in general a material that transmits most of the light is said to be transparent. For eg. water is transparent. Lampblack absorbs most of the light falling on it. A mirror reflects most of the light falling on it.

Questions

- 1) Suppose 10% of light incident on a body is reflected, 70% is absorbed what can you say about the fraction transmitted?
- 2) State the factors on which the extent of absorption of light depends.
- 3) Give one example of material transparent to light.
- 4) What happens when light is absorbed by a body.
- 5) Give one example of material that absorbs most of the light falling on it.

OR

- ii) Draw a well-labelled diagram of a fire extinguisher and state the structure, working and chemical reaction occurring in it.

