MAHARASHTRA BOARD · CLASS 10 · SCIENCE AND TECHNOLOGY PART 1

Maharashtra Board Class 10 Science and Technology Part 1 Important Questions 2027

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39 question patterns that repeated across past papers · the years show every time each was asked

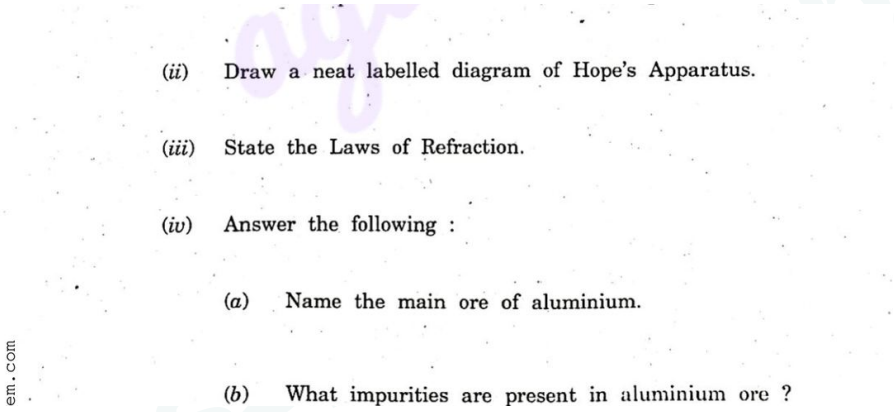
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Gravitation

1. State Kepler's laws of planetary motion

Asked 2× · Board 2022, Board 2026 · 3 marks

State the laws related to the given diagram (a planet revolving around the sun in an orbit).



(ii) Draw a neat labelled diagram of Hope's Apparatus.

(iii) State the Laws of Refraction.

(iv) Answer the following :

(a) Name the main ore of aluminium.

(b) What impurities are present in aluminium ore ?

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2. Distinguish between mass and weight

Asked 2× · Board 2023, Board 2025 · 2 marks

Distinguish between mass and weight.

3. Calculate g from free-fall time and height (5 s, 5 m)

Asked 2× · Board 2022, Board 2025 · 2 marks

An object takes 5 seconds to reach the ground from a height of 5 m on a planet. What is the value of 'g' on the planet?

Periodic Classification of Elements

4. MCQ: non-metals found in the p-block

Asked 2× · Board 2024, Board 2026 · 1 marks

In ..... of the modern periodic table, are the non-metals found. (A) s-block (B) p-block (C) d-block (D) f-block

5. Scientific reason: same group elements have the same valency

Asked 2× · Board 2023, Board 2026 · 2 marks

Give scientific reason: Elements belonging to the same group have the same valency.

6. Scientific reason: atomic radius increases down a group

Asked 2× · Board 2022, Board 2026 · 2 marks

Give scientific reason: Atomic radius goes on increasing down the 'group'.

7. Demerits of Mendeleev's periodic table

Asked 2× · Board 2022, Board 2026 · 3 marks

Write demerits of Mendeleev's periodic table.

8. Determine atomic number/group/period from an electronic configuration

Asked 2× · Board 2023, Board 2025 · 2/3 marks

An element has its electronic configuration as 2, 8, 2. Now answer: (a) What is the atomic number of this element? (b) To which period does this element belong?

Chemical Reactions and Equations

9. Classify phenomena as physical or chemical change

Asked 3× · Board 2023, Board 2026 · 1/3 marks

Complete the co-relation: Cooking of food : Chemical change :: Evaporation of water : .....
.

10. Factors affecting the rate of a chemical reaction, explain one

Asked 2× · Board 2024, Board 2026 · 3 marks

State the factors affecting the rate of chemical reaction. Explain any one of it.

11. Decomposition of sugar on heating

Asked 2× · Board 2023, Board 2025 · 2 marks

What is meant by decomposition reaction? Write the chemical reaction of decomposition of sugar on heating.

12. Identify the type of the given chemical reaction(s)

Asked 2× · Board 2022, Board 2024 · 1/3 marks

$CuSO_4(aq) + Zn(s) \rightarrow ZnSO_4(aq) + Cu(s)$. This is ..... type of chemical reaction. (A) displacement (B) double displacement (C) combination (D) decomposition

Effects of Electric Current

13. Tungsten used for the coil/filament of an electric bulb

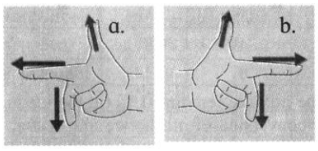
Asked 3× · Board 2024, Board 2025 · 1/2 marks

Give scientific reason: Tungsten metal is used to make a solenoid type coil in an electric bulb.

14. Fleming's / hand rules (state, name or label)

Asked 3× · Board 2022, Board 2025, Board 2026 · 2/3 marks

Name the following diagrams and explain the concept behind them (hand diagrams a and b showing Fleming's rules).



15. MCQ: device used to produce current/electricity (generator)

Asked 2× · Board 2023, Board 2025 · 1 marks

..... device is used to produce electricity. (A) Electric motor (B) Galvanometer (C) Electric generator (D) Voltmeter

16. Odd one out: loudspeaker, microphone, electric motor, magnet

Asked 2× · Board 2023, Board 2025 · 1 marks

Find the odd one out: Loudspeaker, microphone, electric motor, magnet.

17. Scientific reason: copper/aluminium wire for power transmission

Asked 2× · Board 2023, Board 2025 · 2 marks

Give scientific reason: For electric power transmission, copper or aluminium wire is used.

18. Identify electrical safety/measuring devices from figures and give uses

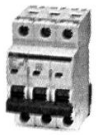
Asked 2× · Board 2023, Board 2025 · 3 marks

Identify figure and write one use of it: (a) fuse (b) miniature circuit breaker (MCB) (c) galvanometer.

(a)



(b)



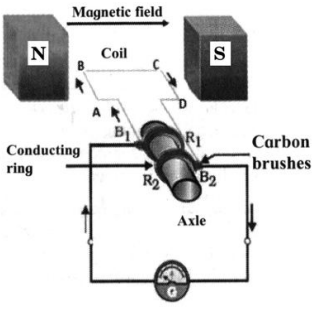
(c)



19. Identify device from diagram; state principle, working and use

Asked 2× · Board 2022, Board 2024 · 5 marks

Observe the following diagram (an appliance with a coil between magnetic poles N and S) and answer: (a) Identify the above diagram. (b) Write the principle on which the above appliance works. (c) Write the working of the above appliance. (d) Write the use of the above appliance.

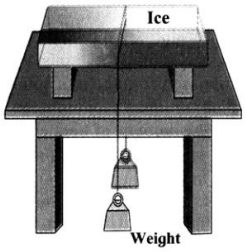


Heat

20. Regelation: identify/define and effect of pressure on melting point

Asked 2× · Board 2024, Board 2026 · 2/3 marks

Observe the figure (a weighted wire passing through a block of ice) and answer: (a) Name the phenomenon shown in the figure. (b) Define the above phenomenon.

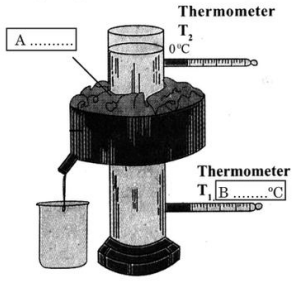


21. Draw/label Hope's apparatus

Asked 2× · Board 2022, Board 2026 · 2 marks

Label the following diagram (Hope's apparatus with two thermometers T1 and T2) and name the property that can be studied using it: A ..... , B ..... degreeC.

(i) Label the following diagram and name the property can be studied using it :



22. Paragraph on heat exchange and the principle of heat exchange

Asked 2× · Board 2022, Board 2026 · 3 marks

Read the paragraph and answer: [context: heat is exchanged between a hot and cold object until both attain the same temperature in an isolated system]. (a) Heat is transferred from where to where? (b) Which principle do we learn from this process? (c) How will you state the principle briefly?

Refraction of Light

23. Formation of a rainbow (refraction, dispersion, total internal reflection)

Asked 4× · Board 2024, Board 2025, Board 2026 · 2/3/5 marks

'A rainbow is the combined effect of refraction, dispersion and total internal reflection of light'. Explain the sentence.

24. Wavelength of violet light

Asked 2× · Board 2025, Board 2026 · 1 marks

What is the wavelength of violet ray in dispersion of light?

25. Refraction at normal incidence (angle of incidence = 0)

Asked 2× · Board 2023, Board 2024 · 1 marks

What is angle of refraction when angle of incidence is 0 degree?

26. Match the pair: refractive index of water

Asked 2× · Board 2022, Board 2024 · 1 marks

Match the Columns: Column 'A' - Refractive index of water; Column 'B' - (a) 1.31 (b) 1.36 (c) 1.33

27. Relate refractive index and speed of light in a medium

Asked 2× · Board 2022, Board 2024 · 2/3 marks

The absolute refractive index of water is 1.33. What is the velocity of light in water? (Velocity of light in vacuum = 3 x 10^8 m/s).

Lenses

28. Calculate the power of a lens from its focal length

Asked 4× · Board 2022, Board 2023, Board 2024, Board 2026 · 1/2 marks

The focal length of a convex lens is 40 cm. What is its power?

29. Simple microscope used for watch repairs

Asked 3× · Board 2022, Board 2024, Board 2025 · 1/2 marks

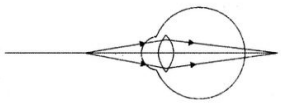
Match the columns: Column 'A' - Simple microscope; Column 'B' - (a) used to observe minute objects (b) used to see distant objects (c) used for watch repair

30. Identify eye defect from figure: cause and correction

Asked 2× · Board 2023, Board 2026 · 5 marks

Observe the following figure and answer: (a) Name the defect of vision represented in the above figure. (b) State the reasons for this defect. (c) How is it corrected? (d) Draw the diagram to show the correction of this defect.

(*ii*) Observe the following figure and answer the questions given below :



Metallurgy

31. Define metallurgy / ores / gangue

Asked 3× · Board 2022, Board 2024, Board 2026 · 2/3 marks

Define: (a) Ores (b) Gangue.

32. Scientific reason: sodium is kept in kerosene

Asked 2× · Board 2024, Board 2025 · 2 marks

Give scientific reason: Sodium is always kept in kerosene.

Carbon Compounds

33. MCQ: functional group of carboxylic acid

Asked 2× · Board 2024, Board 2026 · 1 marks

..... is the functional group of carboxylic acid. (a) -OH (b) -CHO (c) -NH2 (d) -COOH

34. Identify the hydrocarbon from its given structure

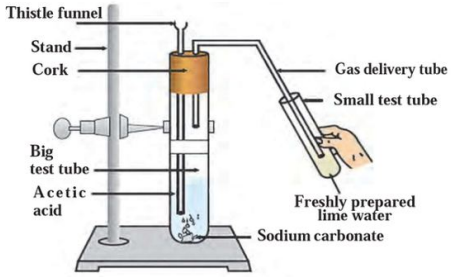
Asked 2× · Board 2024, Board 2026 · 1 marks

Identify the hydrocarbon from the given structural formula: H-C-C-H with hydrogen atoms shown on each carbon (ethane structure).

35. Acetic acid + carbonate reaction diagram (gas, lime water, equation)

Asked 2× · Board 2024, Board 2026 · 3/5 marks

Observe the figure and answer: (a) Which gas is released out as effervescence in the big test tube? (b) What is the colour change in the lime water? (c) Write the related chemical equation.



36. MCQ: combustible component of LPG

Asked 2× · Board 2022, Board 2024 · 1 marks

..... is one of the combustible component of L.P.G. (A) Ethane (B) Propane (C) Methane (D) Ethene

Space Missions

37. Space debris and its management

Asked 2× · Board 2024, Board 2026 · 2/3 marks

Read the passage and answer: [context: space debris - non-functional satellites and launcher parts revolving around the earth that can damage satellites]. (a) What is meant by space debris? (b) How can it be harmful to the artificial satellites? (c) What efforts are being taken to manage it?

38. Complete a table of satellite types with Indian satellite and launcher

Asked 2× · Board 2023, Board 2025 · 2/3 marks

Complete the following table (Type of satellite / Function / names of Indian satellite series and their launch vehicles): (a) location fixing, (b) Weather satellite, (c) IRS with launcher PSLV.

39. Law behind the working of a rocket/launch vehicle

Asked 2× · Board 2022, Board 2025 · 1/2 marks

The 'rocket' is a type of fire cracker used in Diwali. (a) Name the launcher. (b) Name the law on which its working is based.