

APOLLO

States and phases of matter

FBISE Chemistry Class 11 (HSSC-I)

Domain B: Physical Chemistry

42 questions | questions

Original FBISE question crops. National Curriculum 2022-23 topic.

36.	Which property is characteristic of crystalline solids but not amorphous solids?	They have irregular shapes	They show cleavage along definite planes	They soften gradually when heated	They possess isotropic physical properties
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39.	The diagram shows the variation of the boiling points of the Group VI hydrides What explains the much higher boiling point of water compared to the other hydrides?	Strong OH bond energy	Polarity of OH bonds	High electronegativity of oxygen	Hydrogen bonding between H ₂ O molecules
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Describe any three properties of water which are due to hydrogen bonding.	03
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(v)	State any three differences between crystalline and non-crystalline solids.	03
(vi)	Why Enthalpy of solution for NH_4NO_3 is +25.7 kJ/mol (endothermic process) whereas that of	1.5

OR	Explain why: i is the falling drop of water spherical in shape? ii has water high surface tension than Ether? What is the Photo chemical smog? Briefly	1.5 + 1.5
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(vi)	Justify the difference in the boiling points of $CH_4(-162^\circ C)$, $HCl(-85^\circ C)$ and $H_2O(100^\circ C)$.	03
(vii)	What is entropy? Describe the increase or	

1.	The type of intermolecular forces present between Hydrochloric acid molecules is:	Ionic bond	Metallic Force	Dipole Dipole Forces	Hydrogen Bonding
	The reactant that determines the maximum Excess				Limiting

4.	Which property of water is explained by hydrogen bonding?	Low boiling point	High surface tension	High vapor pressure	Low viscosity
	The enthalpy change when 1 mole of a				

Why Heat of vaporization ΔH_v is always greater than ΔH_f Heat of fusion?	03
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(vii) Differentiate between crystalline and amorphous solids with examples.	03	OR	Write the General formulas of Primary, Secondary and Tertiary amines.	1x3
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(xiii) Write any three differences between boiling and evaporation.	1x3	OR	Complete the given equations by identifying the major products: $CH_3CH_2Cl + KCN \rightarrow$	1.5
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State three properties of crystalline solids.	03
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(xiii) Water has low vapour pressure than CCl_4 and ether. Why?	03
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Dipole forces are present in _____	Non-polar	Non-metallic	Metallic	Polar
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State three differences between crystalline and amorphous solids.	1x3
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Identify intermolecular forces among the following molecules. Also write in descending order of their strength. C_6H_6, HF, H_2O, HBr	2+1
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Surface tension of water is about three times more than CCl_4 . Why?	03	OR	Calculate the pH of a buffer solution in which $0.11 M CH_3COONa$ and $0.09 M CH_3COOH$	03
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Write three points of differences between amorphous and crystalline solids.	1+1+1
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Identify types of intermolecular forces among the following molecules. Also write the ascending order of their strength. HCl, NH ₃ , O ₂ , HF	2+1
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(xiii)	What is meant by vapour pressure? Following is a table of the vapour pressure of water, ethanol and pentane. <table><tr><th>Liquid</th><th>Vapour Pressure</th></tr><tr><td>Water (H₂O)</td><td>2.44</td></tr><tr><td>Ethanol (C₂H₅OH)</td><td>5.83</td></tr><tr><td>Pentane (C₅H₁₀)</td><td>59.9</td></tr></table> Explain these variations in vapour pressure.	Liquid	Vapour Pressure	Water (H ₂ O)	2.44	Ethanol (C ₂ H ₅ OH)	5.83	Pentane (C ₅ H ₁₀)	59.9	1+2
Liquid	Vapour Pressure									
Water (H ₂ O)	2.44									
Ethanol (C ₂ H ₅ OH)	5.83									
Pentane (C ₅ H ₁₀)	59.9									

8.	London Dispersion forces are only forces present among which of the following?	Polar molecules of water	Molecules of HF	Molecules of solid iodine	Molecules of ammonium chloride
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Ice has high heat of fusion. Give its two importance in real life.	03
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Differentiate between amorphous and crystalline solids.	03
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03	OR	Give reasons for: a) H_2O is a liquid but H_2S is gas at room temperature. b) Heat of sublimation is greater than heat of vaporization.	03
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a) Simple dry cell	b) Alkaline dry cell
Explain the term vapour pressure. Write two factors affecting the vapour pressure of liquid. Compare the vapour pressure of Diethyl ether, water and ethanol.	
2+2 +3	

6.	According to Kinetic Molecular Theory, gas pressure is due to:	Repulsion between molecules	Attraction between molecules	Collisions of molecules with container walls	Movement of electrons
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7.	Which type of intermolecular force is strongest?	London dispersion	Dipole-dipole	Hydrogen bonding	Van der Waals
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9.	Which of the following is an amorphous solid?	NaCl	Diamond	Graphite	Glass
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(vi)	Differentiate liquid crystals from pure liquids or crystalline solids at least in two ways.	03
(viii)	Justify the following statements:	

(vii)	Justify the following statements: a. Evaporation causes cooling b. Petrol is more volatile than water	03	OR	one application in real life. Differentiate between amorphous and crystalline solids with reference to melting point, water of crystallization and geometrical shape.	1x3
(viii)	Write three differences between molecular and metallic solids.				

OR	one application in real life. Differentiate between amorphous and crystalline solids with reference to melting point, water of crystallization and geometrical shape. Briefly explain what is meant by the term
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(viii)	Write three differences between molecular and metallic solids.	1x3
(ix)	Consider the following reaction of	

Second Annual 2025 | Section B Q2(xi) | 3 marks

(xi)	Why a solution has a lower vapor pressure than the pure solvent? Describe on particle basis.	03
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Second Annual 2025 | Section B Q2(xi) OR | 3 marks

OR	Classify the following processes as Exothermic or Endothermic: a. Formation of clouds b. Formation of ice c. Sublimation of dry ice (CO_2)	03
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Second Annual 2025 | Section B Q2(xiv) | 3 marks

(xiv)	Justify the following statements: a. Water has low vapour pressure than petrol b. Ethanol is more viscous than dimethyl ether	1.5 +1.5	OR	Jus a. b.
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Second Annual 2025 | Section C Q6 OR | 6 marks

OR	Justify the following statements: a. Boiling point of Halogens increases down the group. b. Methane is gas while Hexane is liquid.
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(OLD)

First Annual 2026 | Section B Q2(v) | 3 marks

(v)	Describe the following properties of crystalline solids: a. Melting point b. Cleavage plane c. Habit of a crystal	1x3	OR	What type of reactions occur on hydrolysis of the following salts? Answer along with the reactions involved: a. $NaCl$ b. NH_4Cl	1.5 + 1.5
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First Annual 2026 | Section B Q2(viii) | 3 marks

(viii)	What is meant by evaporation? On what factors does the evaporation rate depend?	03
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First Annual 2026 | Section B Q2(xi) | 3 marks

(xi)	Why molar heat of vaporization of water is greater than its molar heat of fusion?	03
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First Annual 2026 | Section B Q2(xii) | 3 marks

(xii)	How the following factors affect the strength of London dispersion forces: a. Atomic or molecular size b. Polarizability	1.5 + 1.5
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First Annual 2026 | Section B Q2(xiii) | 3 marks

(xiii)	Briefly explain the factors that can affect the rate of evaporation. (Any three)	1x3
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OR	Briefly explain hydrogen bonding. Explain following Properties of water due to hydrogen bonding: a. Surface tension b. Boiling point c. Heat of vaporization	1+ 2x3
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