AL AMAL LEARNING CENTER

Federal Board SSC-I Examination

CHEMISTRY CHAPTER QUIZ

Class 9 | Unit 2

MATTER

Time Allowed: 1:00 hour **Total Marks:** 25

Roll Number	Paper Version

Candidate Sign. _____ Invigilator Sign. _____

SECTION A (Marks 10)

Note: Section A is compulsory. Fill the correct bubble for each question. Each question carries 0.5 mark.

Q#	Question	A	B	C	D
1.	A substance is a solid below 60 °C, a cloudy fluid with some properties of solids between 60 °C and 90 °C, and a clear liquid above 90 °C. What is its state at 75 °C?	Solid	Transparent liquid	Gas	Liquid crystal
2.	Which pair consists of allotropes of the same element?	Diamond and buckyball	Water and steam	Brass and bronze	Carbon dioxide and carbon monoxide
3.	Which pair contains only homogeneous mixtures?	Milk and ink	Brass and vinegar	Muddy water and blood	Sugar syrup and jelly
4.	Which statement is true for both colloids and suspensions but not for true solutions?	Their particles are smaller than 1 nm	They are homogeneous mixtures	Their particles pass through ultra-filter paper	They are heterogeneous mixtures
5.	In the ghee industry, hydrogen gas is used on the surface of nickel metal. Which statement is correct?	Both are solutes	Hydrogen is the solvent and nickel is the solute	Hydrogen is the solute and nickel is the solvent	Both are solvents
6.	Which pair consists of solutions in which a liquid is dissolved in a liquid?	Brine and sugar syrup	Carbonated drink and brine	Amalgam and brass	Vinegar and rectified spirit
7.	Which pair of solutes shows a decrease in solubility as the temperature rises?	Na_2SO_4 and $Ca(OH)_2$	KCl and NH_4Cl	KCl and $Ca(OH)_2$	NH_4Cl and Na_2SO_4
8.	The solubility of KCl is 56 g per 100 g of water at 100 °C and 34.7 g per 100 g of water at 20 °C. A saturated solution of KCl is prepared in 200 g of water at 100 °C and cooled to 20 °C. What mass of KCl crystallizes out?	21.3 g	69.4 g	42.6 g	112 g

Q#	Question	A	B	C	D
9.	Graphite and diamond are both pure carbon, but only graphite conducts electricity. This is because in graphite:	Carbon atoms form a tetrahedral network	Its layers are held together by strong bonds	Each carbon atom is bonded to only three others, leaving free electrons	It contains hollow ring structures
10.	Which of the following is NOT a physical technique for changing the state of matter?	Heating	Cooling	Burning	Changing the pressure
11.	In a buckyball (C-60), each carbon atom is bonded to how many other carbon atoms?	3	4	2	6
12.	Which of the following is a pure substance?	Air	Sea water	Tea	Diamond
Scenario for MCQs 13–16 A student adds 40 g of KCl to 100 g of water at 20 °C and stirs well. The solubility of KCl is 34.7 g per 100 g of water at 20 °C and 56 g per 100 g of water at 100 °C. The mixture is then heated to 100 °C.					
13.	What mass of KCl dissolves at 20 °C?	40 g	34.7 g	56 g	5.3 g
14.	What mass of KCl remains undissolved at 20 °C?	5.3 g	34.7 g	40 g	0 g
15.	What happens when the mixture is heated to 100 °C and stirred?	The same 5.3 g stays undissolved	All the KCl dissolves and the solution is unsaturated	All the KCl dissolves and the solution is saturated	The solution becomes supersaturated at once
16.	How much more KCl can the solution dissolve at 100 °C?	56 g	16 g	21.3 g	40 g
Scenario for MCQs 17–20 A student has three unlabelled liquids. Liquid P is clear, the path of a light beam is not visible in it, and it leaves no residue on any filter paper. Liquid Q is clear, the path of a light beam is visible in it, and it leaves a residue only on ultra-filter paper. Liquid R is cloudy, settles on standing and leaves a residue on ordinary filter paper.					
17.	Liquid P is most likely:	Chalk in water	Muddy water	Sea water	Milk
18.	Liquid Q is most likely:	Sugar syrup	Milk	Chalk in water	Sea water
19.	The particles in liquid R are most likely larger than:	0.1 nm	1 nm	100 nm	1000 nm
20.	Which single test best distinguishes liquid P from liquid Q?	Shining a beam of light through each	Filtering each through ordinary filter paper	Leaving both undisturbed for an hour	Observing the colour of each

SECTION B (3 × 3 = 9 Marks)

Note: Attempt all questions. Each question has an internal choice (OR).

Q1	(a) Define allotropy. (b) Explain why graphite is used as a lubricant while diamond is used in cutting tools.	**1+2**	**OR**	Compare solids, liquids and gases in terms of density, compressibility and fluidity.	**3**
Q2	Define saturated, unsaturated and supersaturated solutions, and explain how a supersaturated solution can be prepared.	**3**	**OR**	The solubility of KCl rises from 34.7 g to 56 g per 100 g of water between 20 °C and 100 °C, while that of $Ca(OH)_2$ falls from 0.173 g to 0.066 g. Explain what this shows about the effect of temperature on solubility.	**3**
Q3	Differentiate between an element, a compound and a mixture, giving one example of each.	**3**	**OR**	Why does the solute in a solution not separate on standing, while the particles of a suspension settle?	**3**

SECTION C (1 × 6 = 6 Marks)

Note: Attempt the question below. It has an internal choice (OR).

Q4	The solubility of KCl is 56 g per 100 g of water at 100 °C and 34.7 g per 100 g of water at 20 °C. A saturated solution is prepared using 250 g of water at 100 °C and then cooled to 20 °C. (a) Calculate the mass of KCl dissolved at 100 °C. (b) Calculate the mass of KCl that crystallizes out on cooling to 20 °C. (c) Is the solution at 20 °C saturated or supersaturated? Explain what happens at the particle level.	**2+2+2**	**OR**	Describe the four states of matter with one example each, and explain how liquid crystals and Bose-Einstein condensates differ from the common states.	**6**

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