TALLENTEX Chemistry

Sample Paper – 2

Duration: 23 Minutes **Maximum Marks: 60**

Instructions

- This paper contains **15** Multiple Choice Questions (Single Correct Answer), modelled on the Chemistry portion of **TALLENTEX** entrance.
- Each correct answer carries **+4 marks**. There is **a penalty of** -1 **mark** for incorrect answers. Unattempted questions carry no penalty.
- Only **one** option is correct. Choose carefully.
- Syllabus: **NCERT Class 8 and Class 9 Chemistry**
- Use of mobile phones, calculators, or electronic gadgets is strictly prohibited.

Q1. A student places a few violet crystals of a solid substance on a watch glass and gently heats the watch glass with a spirit lamp. After a short while, the student observes that the solid has completely disappeared without leaving any liquid residue, and a violet vapour fills the space above the watch glass. Which substance is the student most likely working with?

(A) Common salt (sodium chloride)

(B) Camphor dissolved in water

(C) Iodine

(D) Sulphur

Q2. A scientist observes a freshly prepared starch solution under a powerful microscope. She notices that the tiny starch particles are continuously moving in an erratic, zigzag fashion without any apparent cause. The random path of one such particle over time is shown below. What is the name of this phenomenon, and what causes it?

Zigzag path of a starch (colloidal) particle

(A) Tyndall effect; caused by scattering of light by the colloidal particles

(B) Diffusion; caused by the movement of particles from high to low concentration

(C) Osmosis; caused by unequal pressure on the two sides of the membrane

(D) Brownian motion; caused by unequal bombardment of colloidal particles by solvent molecules

Q3. Priya prepares two beakers — Beaker X containing a true solution of copper sulphate, and Beaker Y containing a colloidal suspension of milk in water. She shines a narrow beam of light through each beaker in a darkened room. Which of the following observations correctly distinguishes the two beakers?

(A) The beam is invisible in Beaker X but shows a bright visible path in Beaker Y due to scattering of light by colloidal particles

(B) The beam is visible in both beakers because all solutions scatter light equally

(C) The beam is visible in Beaker X only because true solutions have larger particles

(D) The beam disappears in both beakers because light cannot travel through liquids

Q4. A chemist needs to separate a mixture of two liquids — ethanol (boiling point $78\,^{\circ}\text{C}$) and water (boiling point $100\,^{\circ}\text{C}$). The boiling points are close but different. Which technique should the chemist use to obtain relatively pure samples of each liquid?

(A) Crystallisation, because the components have different solubilities

(B) Fractional distillation, because the liquids have close but different boiling points and can be separated using a fractionating column

(C) Simple evaporation, because heating will remove one liquid completely

(D) Chromatography, because the two liquids move at different rates on a stationary phase

Q5. Calculate the molecular mass of sulphuric acid (H_2SO_4) using the atomic masses: H = 1 u, S = 32 u, O = 16 u. Which value is correct?

(A) 64 u

(B) 80 u

(C) 98 u

(D) 49 u

Q6. How many **atoms** are present in 2 moles of O_2 molecules? (Avogadro's number $N_A = 6.022 \times 10^{23}$)

$2 \times N_A = 2 \times 6.022 \times 10^{23}$ molecules $4 \times 6.022 \times 10^{23}$ atoms

2 mol O_2 molecules $\xrightarrow{\times 2}$ **Total O atoms**

(A) 6.022×10^{23}

(B) 12.044×10^{23}

(C) 18.066×10^{23}

(D) 24.088×10^{23}

Q7. The sulphate group is a polyatomic ion made up of one sulphur atom and four oxygen atoms. When this ion is written in a chemical formula, such as in iron(III) sulphate $Fe_2(SO_4)_3$, what is the charge carried by a single sulphate ion?

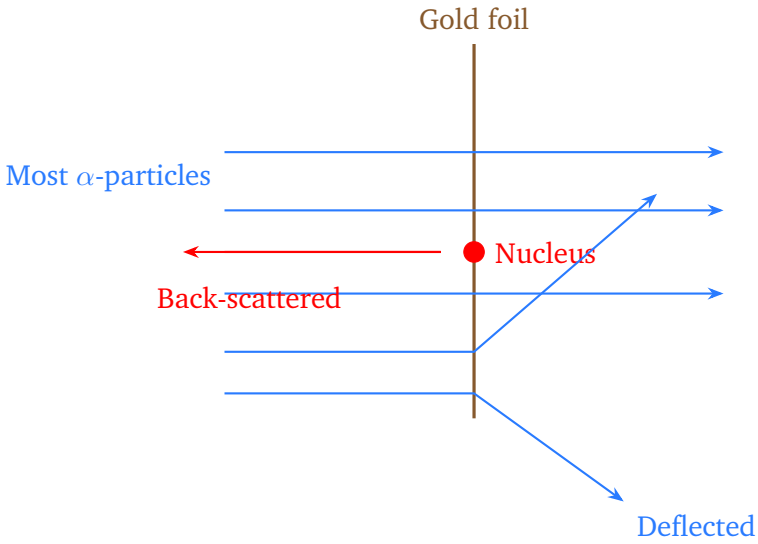
(A) -2

(B) $+2$

(C) -1

(D) $+3$

Q8. In Rutherford's famous gold-foil experiment, a beam of fast-moving alpha particles was directed at a very thin gold foil. The scattering pattern is shown below. Which conclusion about atomic structure follows DIRECTLY from the observation that the vast majority of alpha particles passed straight through the foil?



(A) The entire atom is uniformly filled with positively charged matter

(B) Most of the atom is empty space, with a tiny dense positively charged nucleus at the centre

(C) Electrons are embedded uniformly in a sphere of positive charge

(D) Alpha particles are negatively charged and are repelled by the foil

Q9. Four hypothetical elements P, Q, R, and S have the following electronic configurations:

- P: 2, 8, 2
- Q: 2, 8, 7
- R: 2, 8, 1
- S: 2, 8, 8

Which element is the most reactive metal, and why?

(A) P, because it has 2 valence electrons and can lose them easily

(B) Q, because it needs only one electron to complete its outermost shell

(C) R, because it has only 1 valence electron and can lose it very easily to form a stable configuration

(D) S, because it already has a completely filled outermost shell making it stable

Q10. Calcium-40 ($^{40}_{20}$Ca) and Argon-40 ($^{40}_{18}$Ar) have the same mass number of 40 but different atomic numbers (20 and 18 respectively). What is the correct term for such pairs of atoms, and what do they have in common?

(A) Isotopes; they have the same number of neutrons

(B) Allotropes; they are different physical forms of the same element

(C) Isomers; they have the same molecular formula but different structures

(D) Isobars; they are atoms of different elements having the same mass number but different atomic numbers

Q11. A teacher sets up four stations in a lab. At each station, students test whether a sample conducts heat and electricity. The results are:

- Sample 1: conducts both heat and electricity well
- Sample 2: conducts electricity but not heat
- Sample 3: conducts neither heat nor electricity
- Sample 4: conducts heat poorly and does not conduct electricity

Which sample is most likely a metal?

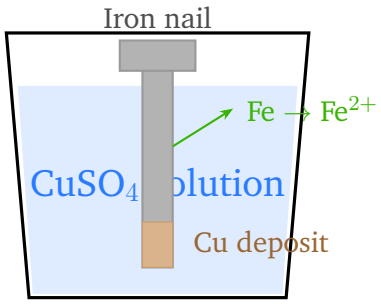
(A) Sample 1, because metals are good conductors of both heat and electricity

(B) Sample 2, because some metals conduct electricity but not heat

(C) Sample 3, because metals form a stable lattice that blocks heat and electricity

(D) Sample 4, because metals have low thermal conductivity

Q12. An iron nail is dropped into a blue solution of copper sulphate ($CuSO_4$) in a beaker. After 20 minutes, the student observes that the blue colour of the solution has faded and a reddish-brown deposit has formed on the iron nail. The set-up is shown below.



Which chemical equation correctly represents this reaction?

(A) $Cu + FeSO_4 \rightarrow CuSO_4 + Fe$

(B) $Fe + CuSO_4 \rightarrow FeSO_4 + Cu$

(C) $Fe + CuSO_4 \rightarrow FeCu + SO_4$

(D) $2Fe + 3CuSO_4 \rightarrow Fe_2(SO_4)_3 + 3Cu_2$

Q13. Ravi pours a small amount of kerosene and places a piece of dry wood on separate ceramic tiles. He then brings a burning matchstick near each. He observes that the kerosene catches fire much more readily than the dry wood. Which of the following statements correctly explains this observation?

(A) Kerosene has a higher ignition temperature than wood, so it burns first

(B) Wood does not burn at all because it is a non-flammable solid

(C) Kerosene has a lower ignition temperature than wood, so it catches fire more easily when exposed to the same heat source

(D) Both substances have identical ignition temperatures but kerosene is a better fuel

Q14. A student builds a simple circuit using a battery, connecting wires, and an LED. She dips the two free wire ends into different liquids to test conductivity. The LED glows brightly when dipped into lemon juice but remains dark when dipped into distilled water. What is the correct reason for this difference?

(A) Lemon juice contains ions (from citric acid) that carry electric current through the solution, whereas distilled water has almost no ions and does not conduct electricity

(B) Lemon juice reflects more light than distilled water, making the LED appear to glow

(C) Distilled water has a higher density than lemon juice, blocking the electric current

(D) The LED glows due to a chemical reaction between the wire and lemon juice, not due to electrical conductivity

Q15. When coal is heated strongly in the **absence of air**, it undergoes a process called destructive distillation. Which of the following lists correctly names the three main useful products obtained from this process?

(A) Petrol, diesel, and kerosene

(B) Coke, coal tar, and coal gas

(C) Charcoal, methane, and ethanol

(D) Bitumen, paraffin wax, and natural gas

Detailed Solutions

Q1.

Solution

Concept — Sublimation: Sublimation is the change of state directly from solid to gas (vapour) without passing through the liquid state. Only certain substances exhibit sublimation.

Step 1 — Identify the key observation: The solid disappears completely on gentle heating, leaving no liquid, and violet vapour is produced. This rules out melting (which would produce a liquid first).

Step 2 — Match to substance: Iodine is a well-known substance that sublimes on gentle heating, producing violet/purple vapour. This perfectly matches the observation of violet crystals giving off violet vapour with no liquid stage.

Why other options are wrong:

- Option A: Common salt (NaCl) has a very high melting point (801 °C) and does not sublime on gentle heating.
- Option B: Camphor dissolved in water — camphor does sublime, but dissolving it in water changes the scenario; the question describes dry violet crystals, not a solution.
- Option D: Sulphur melts on heating before it vaporises; it does not sublime under ordinary conditions and is yellow, not violet.

Final Answer: Iodine sublimes directly from solid to vapour. $\Rightarrow$ C

Answer: (C) Go Back to Q 1

Q2.

Solution

Concept — Brownian Motion: Brownian motion is the random, erratic zigzag movement of colloidal particles (or particles suspended in a fluid) caused by continuous, unequal bombardment from the surrounding solvent/dispersion medium molecules.

Step 1 — Identify the phenomenon: The particles move in a random zigzag path with no net direction, which is the defining characteristic of Brownian motion. The cause is the unequal collision of smaller solvent molecules hitting the colloidal particle from different sides at different times.

Step 2 — Eliminate other options: Tyndall effect is about scattering of light; diffusion involves bulk movement from high to low concentration; osmosis requires a semi-permeable membrane — none of these describe the erratic particle movement observed here.

Why other options are wrong:

- Option A: Tyndall effect is optical (scattering of a light beam), not mechanical motion of particles.
- Option B: Diffusion is a gradual net migration of particles along a concentration gradient, not random zigzag motion.
- Option C: Osmosis requires a semi-permeable membrane and involves the movement of the solvent, not colloidal particles.

Final Answer: Brownian motion; unequal bombardment by solvent molecules. $\Rightarrow$ D

Answer: (D) Go Back to Q 2

Q3.

Solution

Concept — Tyndall Effect: The Tyndall effect is the scattering of a beam of light by colloidal particles. In a true solution, particles are too small (less than 1 nm) to scatter light, so the beam is invisible. In a colloid, particles (1–1000 nm) are large enough to scatter light visibly, making the beam path appear bright.

Step 1 — Apply to Beaker X (true solution of $CuSO_4$): The dissolved Cu^{2+} and SO_4^{2-} ions are of atomic/ionic size and do not scatter light. The light beam passes through invisibly.

Step 2 — Apply to Beaker Y (milk colloid): Milk is a colloid with fat globules in the 100–1000 nm range. These scatter the incident light, making the beam path clearly visible (Tyndall cone).

Why other options are wrong:

- Option B: Not all solutions scatter light; only colloids show the Tyndall effect.
- Option C: True solutions have *smaller* particles, not larger — that is why they do *not* scatter light.
- Option D: Light travels through both liquids; the difference is scattering, not absorption.

Final Answer: Beam invisible in Beaker X; visible Tyndall cone in Beaker Y.

$\Rightarrow$ A

Answer: (A) Go Back to Q 3

Q4.

Solution

Concept — Fractional Distillation: When two miscible liquids have boiling points that are close but different (within $\sim$25 °C of each other), simple distillation cannot separate them cleanly. Fractional distillation uses a fractionating column packed with glass beads or perforated plates, which allows repeated vaporisation-condensation cycles, progressively enriching the vapour in the more volatile component.

Step 1 — Check the boiling points: Ethanol boils at 78 °C, water at 100 °C. The difference is only 22 °C — typical case for fractional distillation.

Step 2 — Eliminate other techniques: Crystallisation separates a dissolved solid from a solvent. Evaporation would remove water but leaves a mixture if temperatures are not controlled. Chromatography separates components based on different affinities for stationary/mobile phases and is used for mixtures that are hard to separate chemically, not primarily for two miscible liquids.

Why other options are wrong:

- Option A: Crystallisation is for solid solutes dissolved in a liquid, not for two miscible liquids.
- Option C: Simple evaporation cannot give pure fractions of each liquid.
- Option D: Chromatography is not used to separate two miscible liquids on an industrial or standard lab scale.

Final Answer: Fractional distillation is used to separate liquids with close boiling points. $\Rightarrow$ B

Answer: (B) Go Back to Q 4

Q5.

Solution

Concept — Molecular Mass: The molecular mass of a compound is the sum of the atomic masses of all atoms in one molecule of that compound.

Step 1 — Write the formula and count atoms: H_2SO_4 contains: 2 atoms of H, 1 atom of S, and 4 atoms of O.

Step 2 — Calculate:

$$M(H_2SO_4) = 2 \times 1 + 1 \times 32 + 4 \times 16 = 2 + 32 + 64 = 98\,\text{u}$$

Why other options are wrong:

- Option A: 64 u corresponds to only the oxygen contribution (4×16), ignoring H and S.
- Option B: 80 u comes from S + 3O $(32 + 48)$, which is incorrect counting.
- Option D: 49 u is half the correct molecular mass, a common error of dividing by 2.

Final Answer: $M(\mathbf{H_2SO_4}) = 98\,\mathbf{u} \Rightarrow$ C

Answer: (C) Go Back to Q 5

Q6.

Solution

Concept — Mole and Avogadro's Number: 1 mole of any substance contains 6.022×10^{23} units (molecules, atoms, etc.) of that substance. Since O_2 is a diatomic molecule, each molecule contains 2 oxygen atoms.

Step 1 — Find number of molecules in 2 mol O_2:

$$\text{Molecules} = 2 \times 6.022 \times 10^{23} = 12.044 \times 10^{23} \text{ molecules of } O_2$$

Step 2 — Find number of atoms:

$$\text{Atoms of O} = 12.044 \times 10^{23} \times 2 = 24.088 \times 10^{23} \text{ oxygen atoms}$$

Why other options are wrong:

- Option A: 6.022×10^{23} would be the number of molecules in 1 mol, not atoms

in 2 mol.

- Option B: 12.044×10^{23} is the number of *molecules* in 2 mol O_2, not atoms.
- Option C: 18.066×10^{23} has no logical basis in this calculation.

Final Answer: 24.088×10^{23} **oxygen atoms.** $\Rightarrow$ D

Answer: (D) Go Back to Q 6

Q7.

Solution

Concept — Polyatomic Ions: A polyatomic ion is a group of atoms covalently bonded together that carries a net electrical charge. The charge on the sulphate ion is a fundamental chemical fact derived from the oxidation states of S and O within the ion.

Step 1 — Determine the charge: The sulphate ion is written as SO_4^{2-}. The superscript $2-$ indicates it carries a charge of -2. In $Fe_2(SO_4)_3$, each Fe is $+3$ and three sulphate ions with charge -2 each balance the two iron ions: $2 \times (+3) + 3 \times (-2) = 0$. This confirms the charge is -2.

Step 2 — Classify: Since the charge is negative, the sulphate ion is an anion.

Why other options are wrong:

- Option B: $+2$ would make sulphate a cation; it is in fact an anion.
- Option C: -1 is the charge on ions like chloride (Cl^-) or nitrate (NO_3^-), not sulphate.
- Option D: $+3$ would correspond to cations such as Fe^{3+} or Al^{3+}, not SO_4.

Final Answer: Charge on SO_4^{2-} is -2. $\Rightarrow$ A

Answer: (A) Go Back to Q 7

Q8.

Solution

Concept — Rutherford's Nuclear Model: Rutherford's 1911 gold-foil experiment replaced Thomson's plum-pudding model. The key observations and their conclusions are: (i) most alpha particles went straight through $\Rightarrow$ atom is mostly empty space; (ii) a few were deflected at large angles $\Rightarrow$ a small, dense, positively charged nucleus exists; (iii) very rarely, an alpha particle bounced back $\Rightarrow$ the nucleus is extremely dense.

Step 1 — Focus on the stated observation: The question specifically asks about the conclusion from *most* alpha particles passing straight through. This can only be explained if there is mostly empty space inside the atom for the particles to travel through without deflection.

Step 2 — Form the conclusion: Since the particles are positively charged and are not deflected, they must be travelling through regions with no concentration of positive charge. This means the positive charge (and mass) is concentrated in a very tiny region (nucleus), and the rest is empty space.

Why other options are wrong:

- Option A: If the atom were uniformly filled with positive matter, all alpha particles would be deflected — they are not.
- Option C: This describes Thomson's plum-pudding model, which Rutherford's experiment disproved.
- Option D: Alpha particles are positively charged ($^4_2$He nuclei), not negatively charged.

Final Answer: Most of the atom is empty space with a tiny dense positive nucleus. $\Rightarrow$ B

Answer: (B) Go Back to Q 8

Q9.

Solution

Concept — Valence Electrons and Metallic Reactivity: Metals lose electrons to form positive ions. A metal with fewer valence electrons (especially 1) loses them more readily, resulting in higher reactivity. Elements in Group 1 (1 valence electron) are the most reactive metals.

Step 1 — Determine valence electrons:

- P: 2,8,2 $\Rightarrow$ 2 valence electrons (Group 2 metal)
- Q: 2,8,7 $\Rightarrow$ 7 valence electrons (non-metal, needs 1 electron)
- R: 2,8,1 $\Rightarrow$ 1 valence electron (Group 1 metal — most reactive metal)
- S: 2,8,8 $\Rightarrow$ 8 valence electrons (noble gas configuration, inert)

Step 2 — Identify the most reactive metal: R has only 1 valence electron. Losing a single electron gives a completely filled inner shell (2,8), which is a very stable configuration. This makes R extremely reactive as a metal.

Why other options are wrong:

- Option A: P (2 valence electrons) is a reactive metal but less reactive than R (1 valence electron).
- Option B: Q (7 valence electrons) is a non-metal that tends to *gain* one electron, not lose electrons like a metal.
- Option D: S (8 valence electrons, noble gas config) is inert and does not react at all.

Final Answer: R is the most reactive metal with 1 valence electron. $\Rightarrow$ C

Answer: (C) Go Back to Q 9

Q10.

Solution

Concept — Isobars: Isobars are atoms of *different elements* that have the *same mass number* (total number of protons + neutrons) but different atomic numbers (different number of protons). They are distinct elements with identical mass numbers.

Step 1 — Compare Ca-40 and Ar-40:

- Ca-40: atomic number 20, mass number 40 (20 protons + 20 neutrons)
- Ar-40: atomic number 18, mass number 40 (18 protons + 22 neutrons)

Same mass number (40), different atomic numbers (20 vs 18) $\Rightarrow$ isobars.

Step 2 — Note what they share: Both have mass number 40. They do *not* have the same number of neutrons (Ca has 20, Ar has 22).

Why other options are wrong:

- Option A: Isotopes have the same atomic number but different mass numbers; Ca and Ar have different atomic numbers.
- Option B: Allotropes are different structural forms of the same element (e.g., diamond and graphite for carbon).
- Option C: Isomers is a concept from organic chemistry referring to compounds with the same molecular formula but different structural arrangements; not applicable here.

Final Answer: Ca-40 and Ar-40 are isobars — same mass number, different atomic numbers. $\Rightarrow$ D

Answer: (D) Go Back to Q 10

Q11.

Solution

Concept — Properties of Metals: Metals are characterised by being good conductors of both heat and electricity. This is because metals have free (delocalised) electrons that can carry both thermal energy and electric charge through the lattice. Non-metals generally lack free electrons and are poor conductors (with the notable exception of graphite, which conducts electricity but not heat well).

Step 1 — Match Sample 1 to metal properties: Sample 1 conducts both heat and electricity well. This is the hallmark property of metals due to their sea of delocalised electrons. Examples include iron, copper, aluminium, and silver.

Step 2 — Classify other samples: Sample 2 (conducts electricity but not heat) could describe graphite. Sample 3 (conducts neither) is likely a non-metal like sulphur or plastic. Sample 4 (conducts heat poorly, no electricity) is a typical non-metal solid.

Why other options are wrong:

- Option B: No common metal lacks thermal conductivity while conducting electricity; both properties go together in metals.
- Option C: Metals are good conductors, not poor ones; a stable lattice in metals *aids* conduction through free electrons.
- Option D: Metals have high, not low, thermal conductivity.

Final Answer: Sample 1 is a metal — good conductor of both heat and electricity. $\Rightarrow$ $\boxed{\text{A}}$

Answer: (A) Go Back to Q 11

Q12.

Solution

Concept — Displacement Reaction: A more reactive metal displaces a less reactive metal from its salt solution. Iron is more reactive than copper in the activity series. Therefore, iron displaces copper from copper sulphate solution, forming iron(II) sulphate and depositing copper metal.

Step 1 — Write the balanced equation:

$$\text{Fe}_{(s)} + \text{CuSO}_{4(aq)} \rightarrow \text{FeSO}_{4(aq)} + \text{Cu}_{(s)}$$

Iron goes into solution as Fe^{2+} ions (solution turns from blue to pale green), and

copper is deposited as a reddish-brown solid on the nail.

Step 2 — Verify observations match: The blue colour (from Cu^{2+}) fades as Cu^{2+} is replaced by Fe^{2+} (which gives a pale green $FeSO_4$ solution). Copper deposits on the iron nail, matching the reddish-brown observation.

Why other options are wrong:

- Option A: This is the reverse reaction; copper cannot displace iron because Cu is less reactive than Fe.
- Option C: SO_4^{2-} remains as a polyatomic ion in solution; it does not separate as a product unit.
- Option D: The stoichiometry is incorrect and the product formula for iron sulphate in this reaction is $FeSO_4$, not $Fe_2(SO_4)_3$.

Final Answer: $\mathbf{Fe + CuSO_4 \rightarrow FeSO_4 + Cu.} \Rightarrow \boxed{B}$

Answer: (B) Go Back to Q 12

Q13.

Solution

Concept — Ignition Temperature: The ignition temperature (also called kindling temperature) of a substance is the minimum temperature to which it must be heated before it can catch fire and sustain combustion in air. Substances with a lower ignition temperature catch fire more easily.

Step 1 — Compare kerosene and wood: Kerosene has an ignition temperature of approximately 220 °C, while dry wood requires approximately 250–300 °C. The lower ignition temperature of kerosene means it requires less heat to start burning.

Step 2 — Explain Ravi's observation: When the same matchstick (providing the same heat) is brought near both substances, kerosene catches fire first because its ignition temperature is lower. Wood requires more heat (higher temperature) to ignite.

Why other options are wrong:

- Option A: This states kerosene has a *higher* ignition temperature, which is incorrect. Higher ignition temperature means harder to ignite, not easier.
- Option B: Dry wood is flammable; it does catch fire — just at a higher temperature than kerosene.
- Option D: The two substances have different ignition temperatures; kerosene's is lower. Calling them identical is factually wrong.

Final Answer: Kerosene has a lower ignition temperature than wood. $\Rightarrow$ C

Answer: (C) Go Back to Q 13

Q14.

Solution

Concept — Electrolytes and Electric Current: Ionic solutions (electrolytes) conduct electricity because they contain freely moving ions. Distilled water is a very poor conductor because it lacks ions. An LED in a circuit glows only when sufficient current flows — i.e., when the liquid is an electrolyte.

Step 1 — Analyse lemon juice: Lemon juice contains citric acid, which partially dissociates in water to produce H^+ ions and citrate anions. These mobile ions carry electric charge, completing the circuit and allowing the LED to glow.

Step 2 — Analyse distilled water: Distilled water has been purified of dissolved salts and minerals. It contains virtually no ions. Without ions to carry charge, current cannot flow, and the LED remains off.

Why other options are wrong:

- Option B: The LED glows due to current flow (ions), not light reflection. Reflection has nothing to do with circuit conductivity.
- Option C: Density of a liquid does not affect electrical conductivity. Ion concentration does.
- Option D: The LED glow is due to electrical current carried by ions, not a chemical reaction between the wire and the lemon juice.

Final Answer: Lemon juice contains ions that carry current; distilled water does not. $\Rightarrow$ A

Answer: (A) Go Back to Q 14

Q15.

Solution

Concept — Destructive Distillation of Coal: When coal is heated to very high temperatures in the *absence of air* (to prevent combustion), it breaks down into three main useful products: (1) **Coke** — a hard, porous carbon residue used as a fuel and reducing agent in metallurgy; (2) **Coal tar** — a black, thick liquid that is a chemical feedstock for dyes, drugs, explosives, and synthetic fibres; (3) **Coal**

gas — a mixture of hydrogen, methane, and carbon monoxide used as a fuel and for illumination.

Step 1 — Verify each product:

- Coke: solid carbon residue from coal pyrolysis ✓
- Coal tar: complex mixture of organic compounds distilled off ✓
- Coal gas: gaseous mixture (H_2, CH_4, CO) produced during heating ✓

Step 2 — Confirm the process: Destructive distillation (pyrolysis) is done without air to prevent burning. Petroleum fractions such as petrol, diesel, and kerosene come from fractional distillation of crude oil, not from coal.

Why other options are wrong:

- Option A: Petrol, diesel, and kerosene are petroleum fractions, obtained from crude oil, not from coal.
- Option C: Charcoal comes from wood, not coal. Ethanol is produced by fermentation, not from coal pyrolysis.
- Option D: Bitumen and paraffin wax are refinery products from crude petroleum; natural gas is found in geological deposits alongside petroleum.

Final Answer: Coke, coal tar, and coal gas are the three products of destructive distillation of coal. $\Rightarrow$ $\boxed{\text{B}}$

Answer: (B) Go Back to Q 15

Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	C	2	D	3	A	4	B	5	C
6	D	7	A	8	B	9	C	10	D
11	A	12	B	13	C	14	A	15	B