# CUET PG 2026 Forensic Science Question Paper with Solutions

| Time Allowed :1 Hour 30 Minutes | Maximum Marks :300 | Total Questions :75 |
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**General Instructions**

**Read the following instructions very carefully and strictly follow them:**

- The Question Paper consists of 75 Multiple Choice Questions (MCQs).
- Total marks for the exam is 300.
- The total duration is 90 minutes; a, timer on the screen will display the remaining time, and the exam will automatically submit when the time reaches zero.
- For every correct answer, 4 marks (+4) will be awarded to the candidate, and a 1 mark (-1) will be deducted for every incorrect answer.
- Question papers are available in both English and Hindi.

**1. During Crime Scene Reconstruction, the "Anisotropic" nature of certain evidence refers to:**

(A) Its chemical purity.
(B) Properties that vary depending on the direction of measurement.
(C) Its ability to be photographed under UV light.
(D) Its radioactive decay rate.

**Correct Answer:** (B) Properties that vary depending on the direction of measurement.

**Solution:**

**Step 1: Understanding the Question:**
The question asks for the definition of "anisotropic" in the context of forensic evidence.

**Step 2: Detailed Explanation:**
The term "anisotropic" originates from Greek words: 'an' (not), 'iso' (same), and 'tropos' (direction).
It describes a material whose physical or mechanical properties (e.g., refractive index, strength, conductivity) are different when measured along different axes.
In contrast, an "isotropic" material has uniform properties in all directions.
A classic example is wood, which is much stronger along the grain than across it (anisotropic). Glass, on the other hand, is generally isotropic.
In forensics, this property is crucial for analyzing evidence like fibers, crystals, and certain minerals using techniques like polarized light microscopy. For example, a synthetic fiber will have different refractive indices when measured parallel and perpendicular to its long axis.

**Step 3: Final Answer:**
Based on the definition, anisotropy refers to properties that are direction-dependent. Therefore, option (B) is the correct answer.

> Quick Tip
>
> Remember the difference: **Isotropic** = properties are the **same** in all directions (e.g., glass, liquids). **Anisotropic** = properties are **different** in different directions (e.g., fibers, wood, crystals). This concept is fundamental to polarized light microscopy (PLM) used in trace evidence analysis.

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**2. In Forensic Serology, "Absorption-Elution" is a method used for:**

(A) DNA extraction from bones.
(B) Determining the ABO blood group from dried stains.
(C) Measuring the concentration of poison in the liver.
(D) Identifying the species of an insect.

**Correct Answer:** (B) Determining the ABO blood group from dried stains.

**Solution:**

**Step 1: Understanding the Question:**
The question asks for the specific application of the "Absorption-Elution" technique in forensic serology.

**Step 2: Detailed Explanation:**
Absorption-Elution (A-E) is a highly sensitive classical method used to determine the ABO blood group from minute or old dried bloodstains.
The process involves three main stages:
**1. Absorption:** A small piece of the bloodstained material is incubated with a known antibody (e.g., anti-A serum). If the corresponding antigen (A antigen) is present in the bloodstain, the antibody will bind to it. The unbound antibodies are then washed away.
**2. Elution:** The sample is heated (typically to 56°C), which causes the bound antibodies to detach (elute) from the antigens and go into a saline solution.
**3. Detection:** This saline solution, now containing the eluted antibodies, is tested against known A, B, and O red blood cells. Agglutination of specific cells (e.g., A cells) confirms the identity of the eluted antibody (anti-A), and thus the presence of the original antigen (A) in the stain.

**Step 3: Final Answer:**
The primary use of the Absorption-Elution method is to identify ABO antigens in dried stains, thereby determining the blood group. Thus, option (B) is correct.

Quick Tip

While DNA analysis has largely replaced traditional serological techniques for individualization, questions about classical methods like Absorption-Elution, Lattes Crust Test, and precipitin tests frequently appear in exams. It's important to know their principles and applications.

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**3. In "Nuclear Magnetic Resonance" (NMR) spectroscopy, the "Chemical Shift" is measured in:**

(A) Nanometers (nm)
(B) Parts per million (ppm)
(C) Hertz (Hz)
(D) Joules (J)

**Correct Answer:** (B) Parts per million (ppm)

**Solution:**

**Step 1: Understanding the Question:**
The question asks for the standard unit of measurement for chemical shift in NMR spectroscopy.

**Step 2: Key Formula or Approach:**
The chemical shift ($\delta$) is a relative scale, calculated using the formula:

$$\delta(\text{in ppm}) = \frac{(\nu_{\text{sample}} - \nu_{\text{reference}})}{\nu_{\text{spectrometer}}} \times 10^6$$

where:
- $\nu_{\text{sample}}$ is the resonance frequency of the sample nucleus (in Hz).
- $\nu_{\text{reference}}$ is the resonance frequency of a standard reference nucleus, like tetramethylsilane (TMS) (in Hz).
- $\nu_{\text{spectrometer}}$ is the operating frequency of the spectrometer (in Hz).

**Step 3: Detailed Explanation:**
The resonance frequency of a nucleus in an NMR experiment depends on the strength of the external magnetic field. A chemist using a 300 MHz spectrometer would get different frequency values (in Hz) for a proton than a chemist using a 600 MHz spectrometer.
To create a standardized, instrument-independent value, the frequency difference ($\nu_{\text{sample}} - \nu_{\text{reference}}$) is divided by the operating frequency of the spectrometer.
This results in a dimensionless ratio (Hz/Hz). To make the numbers easier to handle, this ratio is multiplied by one million ($10^6$), giving the unit "parts per million" (ppm).
This makes the chemical shift value consistent regardless of the spectrometer's magnetic field strength.

**Step 4: Final Answer:**
The standard unit for chemical shift is parts per million (ppm). Therefore, option (B) is the correct answer.

> Quick Tip
>
> Remember the units for different NMR parameters: Chemical Shift ($\delta$) is in **ppm**. Coupling Constant (J) is in **Hertz (Hz)**. The operating frequency of the spectrometer is in **Megahertz (MHz)**.

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**4. The "Critical Angle" is the angle of incidence that results in an angle of refraction of:**

(A) 0°
(B) 45°
(C) 90°
(D) 180°

**Correct Answer:** (C) 90°

**Solution:**

**Step 1: Understanding the Question:**
The question asks for the definition of the "critical angle" in terms of the resulting angle of refraction.

**Step 2: Key Formula or Approach:**
The phenomenon is described by Snell's Law of refraction:

$$n_1 \sin(\theta_1) = n_2 \sin(\theta_2)$$

where:
- $n_1$ and $n_2$ are the refractive indices of the first and second media, respectively.
- $\theta_1$ is the angle of incidence.
- $\theta_2$ is the angle of refraction.

**Step 3: Detailed Explanation:**
The critical angle only exists when light travels from a denser medium to a less dense medium (i.e., $n_1 > n_2$).
As the angle of incidence ($\theta_1$) in the denser medium increases, the angle of refraction ($\theta_2$) in the less dense medium also increases, bending further away from the normal.
The critical angle ($\theta_c$) is the specific angle of incidence ($\theta_1$) for which the angle of refraction ($\theta_2$) becomes exactly 90°. At this point, the refracted ray travels along the boundary between the two media.

Substituting $\theta_1 = \theta_c$ and $\theta_2 = 90^\circ$ into Snell's Law:

$$n_1 \sin(\theta_c) = n_2 \sin(90^\circ)$$

Since $\sin(90^\circ) = 1$, the formula becomes:

$$n_1 \sin(\theta_c) = n_2$$
$$\sin(\theta_c) = \frac{n_2}{n_1}$$

If the angle of incidence exceeds the critical angle ($\theta_1 > \theta_c$), the light does not refract into the second medium at all; instead, it is completely reflected back into the first medium. This phenomenon is called Total Internal Reflection (TIR).

**Step 4: Final Answer:**
By definition, the critical angle is the angle of incidence that produces an angle of refraction of 90 degrees. Therefore, option (C) is correct.

> Quick Tip
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> This concept is vital in forensic science for the analysis of glass. The Glass Refractive Index Measurement (GRIM) system uses the principle of matching the refractive index of a glass fragment with that of a liquid, where the "Becke line" disappears at the match point, a phenomenon related to these optical principles.

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**5. "Toxicokinetics" deals with:**

(A) The effects of the poison on the body.
(B) What the body does to the poison (Absorption, Distribution, Metabolism, Excretion).
(C) The legal punishment for poisoning.
(D) The color of the poison.

**Correct Answer:** (B) What the body does to the poison (Absorption, Distribution, Metabolism, Excretion).

**Solution:**

**Step 1: Understanding the Question:**
The question asks for the definition of "Toxicokinetics".

**Step 2: Detailed Explanation:**
Forensic toxicology involves two main branches: toxicokinetics and toxicodynamics. It's crucial to distinguish between them.
**Toxicokinetics:** This field describes the journey of a toxicant (poison) through the body. It quantifies the processes of:

- **A**bsorption: How the substance enters the body.
- **D**istribution: Where the substance goes in the body.
- **M**etabolism: How the body chemically changes the substance.
- **E**xcretion: How the body removes the substance.
In simple terms, toxicokinetics is *what the body does to the poison.*

**Toxicodynamics:** This field describes the biochemical and physiological effects of the toxicant on the body. It focuses on the mechanism of action at the cellular and molecular level. In simple terms, toxicodynamics is *what the poison does to the body.*

Option (A) describes toxicodynamics. Options (C) and (D) are irrelevant to the scientific definition. Option (B) perfectly describes the ADME processes, which are the core of toxicokinetics.

**Step 3: Final Answer:**
"Toxicokinetics" is the study of how a substance moves into, through, and out of the body. This is accurately summarized as what the body does to the poison. Therefore, option (B) is correct.

Quick Tip

Use this simple way to remember the difference:
- **Kinetics** (like in "kinetic energy") is about **movement** → Toxicokinetics is the **movement** of the poison in the body.
- **Dynamics** (like in "dynamite") is about **power/effects** → Toxicodynamics is the **effects** of the poison on the body.

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**6. Assertion (A): The 'Marquis Test' turns orange-brown in the presence of amphetamines.**
**Reason (R): This color change is due to the reaction of the reagent with the aromatic ring structure of the drug.**

(A) Both A and R are true, and R is the correct explanation of A.
(B) Both A and R are true, but R is not the correct explanation of A.
(C) A is true but R is false.
(D) A is false but R is true.

**Correct Answer:** (A) Both A and R are true, and R is the correct explanation of A.

**Solution:**

**Step 1: Understanding the Question:**
This is an Assertion-Reason question. We need to evaluate the truthfulness of both the Assertion (A) and the Reason (R), and then determine if R correctly explains A.

**Step 2: Evaluating Assertion (A):**
Assertion (A) states that the Marquis Test gives an orange-brown color with amphetamines. The Marquis reagent is a mixture of formaldehyde and concentrated sulfuric acid. This is a well-known result in forensic drug analysis. Amphetamine and methamphetamine both react with the Marquis reagent to produce a distinct orange color that deepens to brown. Thus, Assertion (A) is true.

**Step 3: Evaluating Reason (R):**
Reason (R) states the color is due to a reaction with the drug's aromatic ring. Amphetamines are phenethylamines, meaning they have an ethylamine side chain attached to a benzene (aromatic) ring. The mechanism of the Marquis test involves an electrophilic aromatic substitution reaction. The strong sulfuric acid protonates the formaldehyde, creating a highly reactive electrophile ($CH_2OH^+$) which then attacks the electron-rich aromatic ring of the amphetamine molecule. This leads to the formation of a colored carbocation and subsequent conjugated products. Thus, Reason (R) is true.

**Step 4: Linking A and R:**
The chemical reaction described in R (electrophilic attack on the aromatic ring) is precisely the mechanism that produces the colored compound observed in A. Therefore, R is the correct chemical explanation for A.

**Step 5: Final Answer:**
Since both A and R are true, and R is the correct explanation for A, option (A) is the correct choice.

Quick Tip

For drug chemistry, it's essential to memorize the key spot tests, their reagents, and the positive results for major drug classes. For example:
- **Marquis:** Opiates (purple), Amphetamines (orange-brown).
- **Scott Test:** Cocaine (blue).
- **Duquenois-Levine:** Cannabis (purple).

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**7. A "Rough Sketch" of a crime scene must include:**

(A) A scale drawing.
(B) A north-point and measurements to all relevant objects from fixed points.
(C) Artistic shading.
(D) The names of all suspects.

**Correct Answer:** (B) A north-point and measurements to all relevant objects from fixed points.

**Solution:**

**Step 1: Understanding the Question:**
The question asks for the essential components of a "rough sketch" made at a crime scene.

**Step 2: Detailed Explanation:**
A crime scene sketch is a graphical representation of the scene. There are two main types: the rough sketch and the finished (or scale) sketch.
**Rough Sketch:** This is a draft made *at the crime scene*. Its primary purpose is to accurately record the dimensions of the scene and the precise location of all relevant objects (evidence, furniture, etc.). It is *not* drawn to scale.
Key components of a rough sketch are:
- **Measurements:** Accurate distances of objects from at least two fixed, immovable points (e.g., walls, doors). This is crucial for later reconstruction.
- **North-point/Compass Direction:** To orient the sketch correctly.
- **Legend or Key:** To explain any symbols used.
- **Case Information:** Case number, date, time, location, and the artist's name.

**Step 3: Analyzing the Options:**
(A) A scale drawing: This is a characteristic of a *finished sketch*, not a rough sketch.
(B) A north-point and measurements: These are essential for orientation and accurate placement of items, making this a mandatory component.
(C) Artistic shading: This is irrelevant and can even obscure important details. Sketches should be clear and simple.
(D) The names of all suspects: This is investigative information and does not belong on the physical layout sketch of the scene.

**Step 4: Final Answer:**
The most critical and mandatory elements of a rough sketch listed in the options are the north-point for orientation and measurements for accurate documentation of object locations. Therefore, option (B) is correct.

Quick Tip

Remember the key distinction: **Rough Sketch** = Made at the scene, not to scale, contains all measurements. **Finished Sketch** = Made later (in the office), drawn to scale, based on the rough sketch, and is often used for court presentations.

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**8. "Pen skip" is a characteristic often found in:**

(A) Fountain pens
(B) Ballpoint pens
(C) Felt-tip pens
(D) Pencils

**Correct Answer:** (B) Ballpoint pens

**Solution:**

**Step 1: Understanding the Question:**
The question asks to identify the type of writing instrument most commonly associated with the feature "pen skip".

**Step 2: Detailed Explanation:**
"Pen skip" refers to the intermittent failure of a pen to deposit ink on the paper, resulting in gaps or blank spaces in the written line. This phenomenon is a class characteristic strongly associated with ballpoint pens.
A ballpoint pen works by a small, rotating metal ball at its point that picks up a viscous, oil-based ink from a reservoir and transfers it to the paper.
Skipping occurs for several reasons:
- The ball fails to rotate smoothly.
- Debris (paper fibers, dust) accumulates on the ball or in its housing, preventing ink transfer.
- The pen is held at too low an angle.
- The writing speed is too high for the ink flow.
- Air bubbles get trapped in the ink cartridge.
Other pens have different characteristic defects. Fountain pens might blot or have inconsistent ink flow (shading), but the term "skip" is specific to the mechanical failure of a ballpoint's writing mechanism.

**Step 3: Final Answer:**
The characteristic of "pen skip" is most directly and commonly a result of the mechanism of a ballpoint pen. Therefore, option (B) is the correct answer.

Quick Tip

In Questioned Document examination, be aware of the class characteristics of different pens:
- **Ballpoint:** Pen skips, striations (scratches from the ball housing), gooping/burr striae.
- **Fountain Pen:** Shading (variations in ink density due to pressure), requires absorbent paper.
- **Felt-tip/Porous Point:** Ink bleeding, fiber tracks at the edges of the stroke.
- **Rollerball:** Smooth, dark lines, less skipping than ballpoints due to less viscous ink.

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**9. The "Velocity of Light" in vacuum is approximately:**

(A) $3 \times 10^5$ m/s
(B) $3 \times 10^8$ m/s

(C) $3 \times 10^{10}$ m/s
(D) $3 \times 10^{6}$ m/s

**Correct Answer:** (B) $3 \times 10^{8}$ m/s

**Solution:**

**Step 1: Understanding the Question:**
The question asks for the approximate value of the speed of light in a vacuum, a fundamental physical constant.

**Step 2: Key Formula or Approach:**
The speed of light in a vacuum is denoted by the symbol $c$. Its defined value is exactly 299,792,458 meters per second. For most calculations and general knowledge questions, this value is rounded.

**Step 3: Detailed Explanation:**
We need to express the exact value in scientific notation and round it.
The value is $c = 299,792,458$ m/s.
In scientific notation, this is approximately $2.99792458 \times 10^{8}$ m/s.
For practical purposes, this is commonly rounded to $3.0 \times 10^{8}$ m/s.
Let's compare this with the given options:
(A) $3 \times 10^{5}$ m/s is 300,000 m/s or 300 km/s. This is roughly the speed of sound in some solids, but far too slow for light.
(B) $3 \times 10^{8}$ m/s is 300,000,000 m/s or 300,000 km/s. This is the correct approximation.
(C) $3 \times 10^{10}$ m/s is an incorrect order of magnitude.
(D) $3 \times 10^{6}$ m/s is 3,000 km/s, which is also incorrect.

**Step 4: Final Answer:**
The standard approximation for the velocity of light in a vacuum is $3 \times 10^{8}$ m/s. Therefore, option (B) is correct.

Quick Tip

The speed of light, $c$, is a universal constant you must memorize. It's fundamental to many areas of physics and chemistry relevant to forensics, including spectroscopy ($E = h\nu$, $c = \lambda\nu$) and mass spectrometry ($E = mc^2$).

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**10. Which of the following is a "Physical Change"?**

(A) Burning of wood
(B) Rusting of iron
(C) Melting of ice

(D) Digestion of food

**Correct Answer:** (C) Melting of ice

**Solution:**

**Step 1: Understanding the Question:**
The question asks to identify which of the given options is a physical change, as opposed to a chemical change.

**Step 2: Detailed Explanation:**
A **physical change** is a change in the form or appearance of a substance, but not its chemical composition. Examples include changes of state (melting, boiling), changes in shape, or dissolving. The substance remains the same chemically.
A **chemical change** (or chemical reaction) is a process that results in the formation of new chemical substances with different properties.

Let's analyze the options:
(A) **Burning of wood:** This is combustion, a chemical reaction where wood (cellulose) reacts with oxygen to produce ash, carbon dioxide, water vapor, and other new substances. This is a chemical change.
(B) **Rusting of iron:** This is the oxidation of iron, a chemical reaction where iron (Fe) reacts with oxygen and water to form iron oxide ($Fe_2O_3$), a new substance. This is a chemical change.
(C) **Melting of ice:** This is a change of state from solid water ($H_2O(s)$) to liquid water ($H_2O(l)$). The chemical composition remains $H_2O$. No new substance is formed. This is a physical change.
(D) **Digestion of food:** This involves complex biochemical reactions where enzymes break down large food molecules (carbohydrates, proteins, fats) into smaller, different molecules (sugars, amino acids, fatty acids). This is a chemical change.

**Step 3: Final Answer:**
Among the given options, only the melting of ice is a change of state without altering the chemical identity of the substance. Therefore, it is a physical change. Option (C) is correct.

Quick Tip

A simple test to distinguish physical and chemical changes is to ask: "Can I easily reverse this process?" You can easily freeze water back into ice (physical). You cannot easily "un-burn" wood or "un-rust" iron (chemical).

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**11. "Dermal papillae" are located:**

(A) On the surface of the skin.
(B) Between the epidermis and the dermis (determining the ridge pattern).

(C) Only on the palms.
(D) Inside the sweat glands.

**Correct Answer:** (B) Between the epidermis and the dermis (determining the ridge pattern).

**Solution:**

**Step 1: Understanding the Question:**
The question asks for the location and primary function of dermal papillae in the context of skin structure.

**Step 2: Detailed Explanation:**
The skin is composed of two main layers: the outer layer called the **epidermis** and the inner layer called the **dermis**.
The boundary between these two layers is not flat; it's a wavy interface. The **dermal papillae** are the peg-like projections of the dermis that push up into the epidermis.
On friction ridge skin (palms, fingers, soles of feet), these papillae are arranged in complex double rows. This underlying structure forces the overlying epidermis to conform to its pattern, creating the visible friction ridges (fingerprints).
Because this pattern is locked in at the dermal-epidermal junction, it is permanent and does not change throughout a person's life, even if the surface layer of the epidermis is abraded.

**Step 3: Analyzing the Options:**
(A) On the surface of the skin: Incorrect. The friction ridges are on the surface; the dermal papillae are underneath.
(B) Between the epidermis and the dermis (determining the ridge pattern): Correct. This accurately describes both their location and their critical role in forming fingerprint patterns.
(C) Only on the palms: Incorrect. Dermal papillae are found all over the body, but they are most organized and prominent on friction ridge skin.
(D) Inside the sweat glands: Incorrect. Sweat glands are structures within the dermis, but the papillae are part of the main dermal structure itself, not inside a gland.

**Step 4: Final Answer:**
The dermal papillae are located at the interface of the dermis and epidermis and are responsible for creating the permanent fingerprint pattern. Option (B) is the correct answer.

Quick Tip

Remember the layers of skin from outside in: Epidermis → Dermis → Hypodermis. The unique and permanent nature of fingerprints is due to the structure of the dermal papillae at the boundary between the first two layers. This is the biological basis for fingerprint identification.

**12. "Lattes Crust Method" for ABO grouping is performed on:**

(A) Fresh liquid blood
(B) Dried blood crusts
(C) Semen stains
(D) Bone marrow

**Correct Answer:** (B) Dried blood crusts

**Solution:**

**Step 1: Understanding the Question:**
The question asks about the specific type of sample on which the Lattes Crust Method is used for ABO blood grouping.

**Step 2: Detailed Explanation:**
The Lattes Crust Method (or Lattes Test) is a historical serological technique developed by Leone Lattes in 1915. Its purpose is to determine the ABO blood group from a dried bloodstain.
The principle of the Lattes Test is based on detecting the **antibodies** (agglutinins) present in the serum/plasma portion of the dried bloodstain.
The procedure involves taking a small piece of the dried blood crust and mixing it with a saline suspension of known Type A red blood cells on one side of a slide, and known Type B red blood cells on the other.
If, for example, the known Type A cells agglutinate (clump), it means the stain contained Anti-A antibodies, indicating the blood was from a Type B individual.
This method relies on the antibodies being preserved within the dried plasma, hence it is specifically designed for **dried blood crusts**.

**Step 3: Analyzing the Options:**
(A) Fresh liquid blood: Grouping for fresh blood is done using a much simpler forward and reverse typing method.
(B) Dried blood crusts: This is the exact type of sample the Lattes method was designed for.
(C) Semen stains: While semen can contain blood group substances (in secretors), the Lattes test is for bloodstains.
(D) Bone marrow: This is not the typical sample for this surface-based test.

**Step 4: Final Answer:**
The Lattes Crust Method is specifically designed to detect antibodies in dried blood, making "dried blood crusts" the correct sample type. Option (B) is correct.

Quick Tip

Remember the two classic bloodstain grouping tests and what they detect:
- **Lattes Test:** Detects **Antibodies** (in the serum of the stain).
- **Absorption-Elution:** Detects **Antigens** (on the red blood cells of the stain).
Absorption-Elution is more sensitive and can work on smaller or older stains.

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**13. The "pH" of a 0.01 M HCl solution is:**

(A) 1
(B) 2
(C) 7
(D) 12

**Correct Answer:** (B) 2

**Solution:**

**Step 1: Understanding the Question:**
The question asks for the pH of a hydrochloric acid (HCl) solution with a concentration of 0.01 M.

**Step 2: Key Formula or Approach:**
The pH of a solution is defined as the negative logarithm (base 10) of the hydrogen ion concentration, $[H^+]$.

$$\text{pH} = -\log_{10}([H^+])$$

**Step 3: Detailed Explanation:**
**1. Identify the substance:** HCl (hydrochloric acid) is a **strong acid**. This means it dissociates completely in water.
**2. Determine the hydrogen ion concentration:** Because HCl dissociates completely, a 0.01 M solution of HCl will produce a hydrogen ion concentration of 0.01 M.
The dissociation reaction is: $HCl \rightarrow H^+ + Cl^-$
So, $[H^+] = 0.01$ M.
**3. Express concentration in scientific notation:** 0.01 M is the same as $1 \times 10^{-2}$ M.
**4. Calculate the pH using the formula:**

$$\text{pH} = -\log_{10}(10^{-2})$$

Using the logarithm property that $\log(a^b) = b \cdot \log(a)$:

$$\text{pH} = -(-2) \cdot \log_{10}(10)$$

Since $\log_{10}(10) = 1$:

$$\text{pH} = -(-2) \cdot 1$$

$$\text{pH} = 2$$

**Step 4: Final Answer:**
The pH of a 0.01 M HCl solution is 2. Therefore, option (B) is correct.

**Quick Tip**

For any strong acid with a concentration of $1 \times 10^{-n}$ M, the pH is simply $n$.
Example: 0.1 M ($10^{-1}$ M) HCl $\rightarrow$ pH = 1
Example: 0.001 M ($10^{-3}$ M) HCl $\rightarrow$ pH = 3

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