| **Template ID** | **Tercera+10+Mathematics+Triangles+001** | |
| --- | --- | --- |
| **Template Name** | **MCQ** | |
| **Topic** | **Congruence and Similarity** | |
| **Question Serial No** | **1** | |
| **Question Type** | **Single Choice** | |
| **Subtopic** | **Introduction** | |
| **Instructions** | **None** | |
| **Question Text** | In given figure $\mathrm{D}$ and $\mathrm{E}$ are respectively the points on the sides $\mathrm{BA}$ and $\mathrm{BC}$ of a $\triangle \mathrm{ABC}$ such that $\mathrm{BD}=5 \mathrm{~cm}, \mathrm{BE}=4.2 \mathrm{~cm}, \mathrm{BA}=15 \mathrm{~cm}$, and $\mathrm{DE} \| \mathrm{AC}$, find $\mathrm{BC}$. | |
| **Options** | **A** | 26.4 |
| **B** | 13.2 |
| **C** | 8.8 |
| **D** | 12.6 |
| **Answer** | D | |
| **Solution** | \begin{aligned}  &\mathrm{DE}|| \mathrm{AC} \\  &\quad \Rightarrow \angle \mathrm{BDE}=\angle \mathrm{BAC} \\  &\quad \Rightarrow \angle \mathrm{BED}=\angle \mathrm{BCA} \\  &\triangle \mathrm{BDE} \sim \triangle \mathrm{BAC} . .=\frac{(\text { by } \mathrm{AA} \text { rule) }}{\text { Therefore, } \mathrm{BD} / \mathrm{BA}=\mathrm{BE} / \mathrm{BC}} \\  &{\quad \Rightarrow 5 / 15=4.2 / \mathrm{BC}} \\  &{\mathrm{BC}=12.6}  \end{aligned} | |
| **Exams** | CBSE | |
| **Concept Tips** |  | |
| **Taxonomy** |  | |
| **Difficulty Level** | Easy | |
| **PYQ** | NA | |
| **Wow Factor** | No | |
| **Quality Grade** | A | |
| **Remarks** |  | |

| **Topic** | **Congruence and Similarity** | |
| --- | --- | --- |
| **Question Serial No** | **2** | |
| **Question Type** | **Single Choice** | |
| **Subtopic** | **Introduction** | |
| **Instructions** | **None** | |
| **Question Text** | Find x. | |
| **Options** | **A** | 3 |
| **B** | 4 |
| **C** | 25/4 |
| **D** | 6 |
| **Answer** | B | |
| **Solution** | \begin{aligned}  \angle B D E&=180-150=30 \\  \Rightarrow B D E&=B C A \\  \Rightarrow E B D&=A B C \\  \therefore \triangle E B D&=\triangle A B C \\  \Rightarrow E D / B D&=A C / B C \\  \Rightarrow x / 5&=15 /(5+7) \\  \Rightarrow x&=10\times 2 / 5 \\  \Rightarrow x&= 4  \end{aligned} | |
| **Exams** | CBSE | |
| **Concept Tips** |  | |
| **Taxonomy** |  | |
| **Difficulty Level** | Medium | |
| **PYQ** | NA | |
| **Wow Factor** | No | |
| **Quality Grade** | A | |
| **Remarks** |  | |

| **Topic** | **Congruence and Similarity** | |
| --- | --- | --- |
| **Question Serial No** | **3** | |
| **Question Type** | **Single Choice** | |
| **Subtopic** | **Introduction** | |
| **Instructions** | **None** | |
| **Question Text** | $\mathrm{F} \mathrm{QR}=\mathrm{RS}, \triangle \mathrm{ABD} \cong \triangle \mathrm{ACE}$, find the correct option: | |
| **Options** | **A** | $\mathrm{OP}=\mathrm{OQ}$ |
| **B** | $\angle \mathrm{P O Q}=\angle \mathrm{R O S}$ |
| **C** | $\triangle\mathrm{OPS}$ is isosceles |
| **D** | All of the above |
| **Answer** | B | |
| **Solution** | From the given fig, we can conclude that $\mathrm{PQRS}$ is a square, and $\mathrm{OPS}$ is an equilateral triangle.  $\\$So, $\mathrm{C}$ is wrong.  $\\$Also, it implies $\mathrm{OP}=\mathrm{PS}=\mathrm{PQ}$  $\\$So, $\mathrm{A}$ is also incorrect.  $$  \begin{aligned}  &\Rightarrow \mathrm{PQ=RS} \\  &\Rightarrow \mathrm{OP=OS} \\  &\Rightarrow \angle OPQ=\angle OSR {(\text { each } 90^\circ+60^\circ=150^\circ)}  \end{aligned}  $$  Therefore, $\triangle \mathrm{OPQ} \cong \triangle \mathrm{OSR}$  $$  \Rightarrow \angle \mathrm{POQ}=\angle \mathrm{ROS}  $$  So, $\mathrm{B}$ is correct. | |
| **Exams** | CBSE | |
| **Concept Tips** |  | |
| **Taxonomy** |  | |
| **Difficulty Level** | Medium | |
| **PYQ** | NA | |
| **Wow Factor** | No | |
| **Quality Grade** | A | |
| **Remarks** |  | |

| **Topic** | **Congruence and Similarity** | |
| --- | --- | --- |
| **Question Serial No** | **4** | |
| **Question Type** | **Single Choice** | |
| **Subtopic** | **Summary** | |
| **Instructions** | **None** | |
| **Question Text** | If two cuboids are similar, one having length $=5 \mathrm{~cm}$, breadth $=7 \mathrm{~cm}$, other's breadth $=9 \mathrm{~cm}$. Find the ratio of the area of the second cuboid to the first. | |
| **Options** | **A** | $\frac{81}{49}$ |
| **B** | $\frac{25}{81}$ |
| **C** | $\frac{27}{75}$ |
| **D** | $\frac{9}{5}$ |
| **Answer** | A | |
| **Solution** | Ratio of area $=\left(\frac{b\_{2}}{b\_{1}}\right)^{2}$  $\\$  $\begin{aligned}  &\Rightarrow \left(\frac{9}{7} \right)^{2} \\  & \Rightarrow \left(\frac{81}{49} \right)  \end{aligned}$ | |
| **Exams** | CBSE | |
| **Concept Tips** |  | |
| **Taxonomy** |  | |
| **Difficulty Level** | Easy | |
| **PYQ** | NA | |
| **Wow Factor** | No | |
| **Quality Grade** | A | |
| **Remarks** |  | |

| **Template ID** | **Tercera+10+Science+Carbon and Its Compounds+001** | |
| --- | --- | --- |
| **Template Name** | **MCQ** | |
| **Topic** | **Ethanol and Ethanoic Acid** | |
| **Question Serial No** | **5** | |
| **Question Type** | **Single Choice** | |
| **Subtopic** | **Reactions of ethanol** | |
| **Instructions** | **None** | |
| **Question Text** | A reagent for conversion of ethanol to ethanal- | |
| **Options** | **A** | Sodium hydroxide |
| **B** | Dichromate |
| **C** | Acetaldehyde |
| **D** | pyridinium chlorochromate |
| **Answer** | D | |
| **Solution** | A Ethanol can be oxidising into ethanal by using pyridinium chlorochromate. Ethanol is oxidised by acidified sodium dichromate in a test-tube reaction, firstly to form ethanal (acetaldehyde), and with further oxidation, ethanoic acid (acetic acid). Pyridinium chlorochromate (PCC), a complex of chromium trioxide with pyridine and $\mathrm{HCl}$ is a better oxidizing agent for oxidation of primary alcohols to aldehydes in good yield.  $$  \mathrm{CH}\_{3} \mathrm{CH}\_{2} \mathrm{OH} \stackrel{\mathrm{PCC}}{\longrightarrow} \mathrm{CH}\_{3} \mathrm{CHO}  $$  Also, $\mathrm{CrO}\_{3}$ in an anhydrous medium is used for obtaining aldehydes.  $$  \mathrm{CH}\_{3} \mathrm{CH}\_{2} \mathrm{OH} \stackrel{\mathrm{CrO}\_{3}}{\longrightarrow} \mathrm{CH}\_{3} \mathrm{CHO}  $$ | |
| **Exams** | CBSE | |
| **Concept Tips** |  | |
| **Taxonomy** |  | |
| **Difficulty Level** | Easy | |
| **PYQ** | NA | |
| **Wow Factor** | No | |
| **Quality Grade** | A | |
| **Remarks** |  | |

| **Topic** | **Ethanol and Ethanoic Acid** | |
| --- | --- | --- |
| **Question Serial No** | **6** | |
| **Question Type** | **Single Choice** | |
| **Subtopic** | **Ethanol and its properties** | |
| **Instructions** | **None** | |
| **Question Text** | What are the fermentation conditions $(\mathrm{pH})$ for the ethanol production? | |
| **Options** | **A** | $1$-$2$ |
| **B** | $5$-$5.5$ |
| **C** | $7$ |
| **D** | $4$-$4.4$ |
| **Answer** | B | |
| **Solution** | The appropriate concentration of sugar that induced the maximum production of ethanol by these strains was 20 to $25 \%$. The optimum pH range for both strains was 5.0-5.5. ethanol yield was increased by increasing temperature up to $30^{\circ} \mathrm{C}$, while it was decreased by further increasing temperature to $35^{\circ} \mathrm{C}$. The yield of ethanol was increased with time and $\mathrm{pH}$. The maximum yield of ethanol occurred after $36 \mathrm{~h}$. | |
| **Exams** | CBSE | |
| **Concept Tips** |  | |
| **Taxonomy** |  | |
| **Difficulty Level** | Easy | |
| **PYQ** | NA | |
| **Wow Factor** | No | |
| **Quality Grade** | A | |
| **Remarks** |  | |

| **Template ID** | **Tercera+11+Chemistry+Chemical Bonding-II+001** | |
| --- | --- | --- |
| **Template Name** | **MCQ** | |
| **Topic** | **Co-ordinate Covalent Bonds** | |
| **Question Serial No** | **7** | |
| **Question Type** | **Single Choice** | |
| **Subtopic** | **Dipole Moment** | |
| **Instructions** | **None** | |
| **Question Text** | Some structures are given below. Mark which one of them has zero dipole moment? | |
| **Options** | **A** |  |
| **B** |  |
| **C** |  |
| **D** | Dipole moment of all organic compounds is zero. |
| **Answer** | B | |
| **Solution** | The compound $ \mathrm{A}$ is meta di-chlorobenzene this polar in nature and dipole moment is $1.72 \mathrm{\ D}$.  $\\$The compound $ \mathrm{C}$ is ortho di-chlorobenzene this polar in nature and dipole moment is $2.54 \mathrm{\ D}$.  $\\$The compound $ \mathrm{B}$ is para di-chlorobenzene this non-polar in nature and net dipole moment is zero because one part of $\mathrm{C}-\mathrm{Cl}$ having positive dipole while another part of $\mathrm{C}-\mathrm{Cl}$ having negative dipole. Orientation of these bonds are in same plane.  $\\$Hence, because of the vector cancellation of the $\mathrm{C}$ - $\mathrm{Cl}$ bond the net dipole is zero for $\mathrm{p}$-chlorobenzene. | |
| **Exams** | ISC | |
| **Concept Tips** |  | |
| **Taxonomy** |  | |
| **Difficulty Level** | Easy | |
| **PYQ** | NA | |
| **Wow Factor** | No | |
| **Quality Grade** | A | |
| **Remarks** |  | |

| **Topic** | **Co-ordinate Covalent Bonds** | |
| --- | --- | --- |
| **Question Serial No** | **8** | |
| **Question Type** | **Single Choice** | |
| **Subtopic** | **Dipole Moment** | |
| **Instructions** | **None** | |
| **Question Text** | Relationship between dipole moment and bond length is \_\_\_\_\_. | |
| **Options** | **A** | $\text { Dipole moment } \propto \text { Bond Length }$ |
| **B** | $\text { Dipole moment } \propto \frac{1}{\text { Bond Length }}$ |
| **C** | There is no relation between Dipole moment and bond length |
| **D** | None of the above |
| **Answer** | B | |
| **Solution** | Dipole moment is inversely proportion to bond length. It increases with decrease in bond length while, decrease with increase in bond length.  $\\$Dipole moment $\propto \frac{1}{\text { Bond Length }}$ $\\$  $\begin{array}{|c|c|c|}  \hline \text { Compound } & \text { Bond Length (Å) } & \text { Dipole Moment (D) } \\  \hline \mathrm{HF} & 0.92 & 1.82 \\  \hline \mathrm{HCl} & 1.27 & 1.08 \\  \hline \mathrm{HBr} & 1.41 & 0.82 \\  \hline \mathrm{HI} & 1.61 & 0.44 \\  \hline  \end{array}$ | |
| **Exams** | ISC | |
| **Concept Tips** |  | |
| **Taxonomy** |  | |
| **Difficulty Level** | Hard | |
| **PYQ** | NA | |
| **Wow Factor** | No | |
| **Quality Grade** | A | |
| **Remarks** |  | |

| **Template ID** | **Tercera+10+Chemistry+Study of Compounds+001** | |
| --- | --- | --- |
| **Template Name** | **MCQ** | |
| **Topic** | **Some Experiments with HCl** | |
| **Question Serial No** | **9** | |
| **Question Type** | **Single Choice** | |
| **Subtopic** | **HCl – A Gas Denser than Air** | |
| **Instructions** | **None** | |
| **Question Text** | Out of which following Arrangement can be used to demonstrate the density of $\mathrm{HCL}$ gas ? | |
| **Options** | **A** |  |
| **B** |  |
| **C** |  |
| **D** |  |
| **Answer** | C | |
| **Solution** | This experiment demonstrates that $\mathrm{HCL}$ gas is heavier than air. A jar is taken in which a burning candle is kept inside. The $\mathrm{HCL}$ gas is poured into this jar, which due to its heaviness, flows downwards, displacing the inside air. Loss of air, i.e. oxygen, causes the flame to extinguish, proving the presence of $\mathrm{HCL}$ gas. | |
| **Exams** | ICSE | |
| **Concept Tips** |  | |
| **Taxonomy** |  | |
| **Difficulty Level** | Hard | |
| **PYQ** | NA | |
| **Wow Factor** | No | |
| **Quality Grade** | A | |
| **Remarks** |  | |

| **Template ID** | **Tercera+10+Physics+Oscillations+001** | |
| --- | --- | --- |
| **Template Name** | **MCQ** | |
| **Topic** | **Simple Harmonic Motion** | |
| **Question Serial No** | **10** | |
| **Question Type** | **Single Choice** | |
| **Subtopic** | **Simple harmonic motion** | |
| **Instructions** | **None** | |
| **Question Text** | Which of the following is relation between speed of a particle v in uniform circular motion and its angular speed | |
| **Options** | **A** | $v=\omega A$ |
| **B** | $v=\omega / A$ |
| **C** | $v=\omega+A$ |
| **D** | none of the above |
| **Answer** | A | |
| **Solution** | The speed of a particle $v$ in uniform circular motion is its angular speed $\omega$ times the radius of the circle A. The direction of velocity $v$ at a time $t$ is along the tangent to the circle at the point where the particle is located at that instant. Thus, $v=\omega \mathrm{A}$ is the answer. | |
| **Exams** | CBSE | |
| **Concept Tips** |  | |
| **Taxonomy** |  | |
| **Difficulty Level** | Easy | |
| **PYQ** | NA | |
| **Wow Factor** | No | |
| **Quality Grade** | A | |
| **Remarks** |  | |