

## AICEE 2022 SAMPLE SET 1 (Chemistry )

Q1.	<p>“Total pressure of gas mixture is the sum of individual pressures”. Which law is reflected in this statement?</p> <ul style="list-style-type: none"><li><input type="checkbox"/> Raoult’s law</li><li><input type="checkbox"/> Henry’s law</li><li><input checked="" type="checkbox"/> Dalton’s law</li><li><input type="checkbox"/> Amagat’s law</li></ul>
Q2.	<p>What symbol is used to denote ‘molality’?</p> <ul style="list-style-type: none"><li><input type="checkbox"/> n</li><li><input checked="" type="checkbox"/> m</li><li><input type="checkbox"/> mM</li><li><input type="checkbox"/> M</li></ul>
Q3.	<p>Which of the following is a true solution?</p> <ul style="list-style-type: none"><li><input type="checkbox"/> Blood</li><li><input checked="" type="checkbox"/> Salt solution</li><li><input type="checkbox"/> Ink</li><li><input type="checkbox"/> Starch solution</li></ul>
Q4.	<p>An element of density <math>8.0 \text{ g/cm}^3</math> forms an FCC lattice with unit cell edge of 300 pm. Calculate the number of atoms present in 0.5kg of the element.</p> <ul style="list-style-type: none"><li><input checked="" type="checkbox"/> <math>92.59 \times 10^{23}</math> atoms</li><li><input type="checkbox"/> <math>95 \times 10^{23}</math> atoms</li><li><input type="checkbox"/> <math>91.38 \times 10^{23}</math> atoms</li><li><input type="checkbox"/> <math>93.59 \times 10^{23}</math> atoms</li></ul>
Q5.	<p>Polar molecular solids are _____</p> <ul style="list-style-type: none"><li><input type="checkbox"/> good conductors of electricity</li><li><input type="checkbox"/> brittle</li><li><input type="checkbox"/> solid at room temperature</li><li><input checked="" type="checkbox"/> bad conductors of electricity</li></ul>

Q6.	<p>The rate constant of a reaction is <math>k=3.28 \times 10^{-4} \text{ s}^{-1}</math>. Find the order of the reaction.</p> <p>First order Second order Third order Zero order</p>
Q7.	<p>Which of the following is not an example of a pseudo first-order reaction?</p> <p><input type="checkbox"/> <math>\text{C}_2\text{H}_5\text{COOC}_2\text{H}_5 + \text{H}_2\text{O} \rightarrow \text{C}_2\text{H}_5\text{COOH} + \text{C}_2\text{H}_5\text{OH}</math>  <input type="checkbox"/> <math>\text{C}_{12}\text{H}_{22}\text{O}_{11} + \text{H}_2\text{O} \rightarrow \text{glucose} + \text{fructose}</math>  <input type="checkbox"/> <math>\text{CH}_3\text{COOC}_2\text{H}_5 + \text{H}_2\text{O} \rightarrow \text{CH}_3\text{COOH} + \text{C}_2\text{H}_5\text{OH}</math>  <input checked="" type="checkbox"/> <math>\text{CH}_3\text{COOC}_2\text{H}_5 + \text{NaOH} \rightarrow \text{CH}_3\text{COOH} + \text{H}_2\text{O}</math></p>
Q8.	<p>Which of the following is not a fuel cell?</p> <p><input type="checkbox"/> PEM cell  <input type="checkbox"/> Direct methanol cell  <input type="checkbox"/> Solid oxide cell  <input checked="" type="checkbox"/> Daniell cell</p>
Q9.	<p>Which of the following is a product formed during the electrolysis of brine?</p> <p><input type="checkbox"/> NaCl  <input type="checkbox"/> <math>\text{Na}_2\text{O}</math>  <input type="checkbox"/> <math>\text{H}_2\text{O}</math>  <input checked="" type="checkbox"/> NaOH</p>
Q10.	<p>Which of the following can result in a transition from physisorption to chemisorption?</p> <p><input type="checkbox"/> Decrease in temperature  <input checked="" type="checkbox"/> Increase in temperature  <input type="checkbox"/> Decrease in pressure  <input type="checkbox"/> Increase in surface area</p>

Q11.	<p>What is one method of qualitatively analyzing a given salt for presence of ammonia?</p> <p>Solution turns blue litmus red  Heating the salt causing decrepitation  Addition of NaOH causing white gelatinous precipitate  Using a reagent to obtain dirty brown precipitate</p>
Q12.	<p>In invar, what is the composition of iron and nickel?</p> <p><input type="checkbox"/> Fe-36%, Ni-64%  <input checked="" type="checkbox"/> Fe-64%, Ni-36%  <input type="checkbox"/> Fe-62%, Ni-38%  <input type="checkbox"/> Ni-68%, Fe-32%</p>
Q13.	<p>Which of the following compounds does not have a stereocenter?</p> <p><input checked="" type="checkbox"/> Propan-2-ol  <input type="checkbox"/> 2-Bromo-1-chlorobutane  <input type="checkbox"/> 2-Bromopentane  <input type="checkbox"/> Butan-2-ol</p>
Q14.	<p>If <math>\beta</math> is the formation constant, then the instability constant = _____</p> <p><input type="checkbox"/> <math>\beta - 1</math>  <input type="checkbox"/> <math>\log(\beta)</math>  <input type="checkbox"/> <math>1 - \beta</math>  <input checked="" type="checkbox"/> <math>(1/\beta)</math></p>
Q15.	<p>What is the correct order of reactivity of the following haloacids with a given alcohol?</p> <p><input type="checkbox"/> <math>\text{HI} &gt; \text{HCl} &gt; \text{HBr}</math>  <input type="checkbox"/> <math>\text{HBr} &gt; \text{HCl} &gt; \text{HI}</math>  <input type="checkbox"/> <math>\text{HCl} &gt; \text{HBr} &gt; \text{HI}</math>  <input checked="" type="checkbox"/> <math>\text{HI} &gt; \text{HBr} &gt; \text{HCl}</math></p>
Q16.	<p>The solubility of carboxylic acids _____ with the increase in size of</p>

	<p>alkyl groups.</p> <p>decreases</p> <p>increases</p> <p>varies unpredictably</p> <p>remains same</p>
Q17.	<p>Which of the following has a higher acidic character than benzoic acid?</p> <p><input type="checkbox"/> p-Aminobenzoic acid</p> <p><input type="checkbox"/> Acetic acid</p> <p><input checked="" type="checkbox"/> p-Bromobenzoic acid</p> <p><input type="checkbox"/> p-Methoxybenzoic acid</p>
Q18.	<p>What is the correct IUPAC name of the compound <math>\text{CH}_3\text{CH}=\text{CHCH}=\text{CHCOOH}</math>?</p> <p><input type="checkbox"/> Pentenediic acid</p> <p><input type="checkbox"/> Penta-1,3-dieniic acid</p> <p><input checked="" type="checkbox"/> Hexa-2,4-dienoic acid</p> <p><input type="checkbox"/> Hexenediic acid</p>
Q19.	<p>Which form of glucose is obtained by crystallization from hot and saturated aqueous solution at 371K?</p> <p><input checked="" type="checkbox"/> <math>\beta</math>-form</p> <p><input type="checkbox"/> L-form</p> <p><input type="checkbox"/> D-form</p> <p><input type="checkbox"/> <math>\alpha</math>-form</p>
Q20.	<p>Which is the largest halogen atom?</p> <p><input type="checkbox"/> Bromine</p> <p><input type="checkbox"/> Fluorine</p> <p><input checked="" type="checkbox"/> Iodine</p> <p><input type="checkbox"/> Chlorine</p>
Q21.	<p>How many isomers does <math>\text{C}_5\text{H}_{11}\text{Br}</math> have?</p> <p><input checked="" type="checkbox"/> 6</p>

	<p>8</p> <p>10</p> <p>4</p>
Q22.	<p>What is the correct order of reactivity of the following haloacids with a given alcohol?</p> <p><input type="checkbox"/> HCl &gt; HBr &gt; HI</p> <p><input type="checkbox"/> HI &gt; HCl &gt; HBr</p> <p><input type="checkbox"/> HBr &gt; HCl &gt; HI</p> <p><input checked="" type="checkbox"/> HI &gt; HBr &gt; HCl</p>
Q23.	<p>The following reaction to form haloalkanes is an example of which type of reaction?</p> <p><b>Propane + Cl<sub>2</sub> (in the presence of UV light) = 1-Chloropropane + 2-Chloropropane</b></p> <p><input type="checkbox"/> Halogen exchange</p> <p><input type="checkbox"/> Finkelstein reaction</p> <p><input type="checkbox"/> Swarts reaction</p> <p><input checked="" type="checkbox"/> Free radical substitution</p>
Q24.	<p>For a particular alkyl group R, what is the correct order of boiling points of the following compounds?</p> <p><input type="checkbox"/> RCl &gt; RBr &gt; RF</p> <p><input type="checkbox"/> RF &gt; RCl &gt; RBr</p> <p><input checked="" type="checkbox"/> RBr &gt; RCl &gt; RF</p> <p><input type="checkbox"/> RF &gt; RBr &gt; RCl</p>
Q25.	<p>Two or more compounds that have the same chemical formula, but different arrangement of atoms are called _____</p> <p><input type="checkbox"/> isotopes</p> <p><input type="checkbox"/> isotones</p> <p><input checked="" type="checkbox"/> isomers</p> <p><input type="checkbox"/> allotropes</p>

Q26.	<p>Which of the following is the coordination entity in <math>K_2[Zn(OH)_4]</math>?</p> <p><math>K^+</math>  <math>[Zn(OH)_4]^{2-}</math>  <math>OH^-</math>  <math>Zn^{2+}</math></p>
Q27.	<p>Identify the catalyst in the nucleophilic addition of HCN to acetone.</p> <p><input checked="" type="checkbox"/> NaOH  <input type="checkbox"/> NaCl  <input type="checkbox"/> NaCN  <input type="checkbox"/> HCl</p>
Q28.	<p>A compound on treatment with hydrazine followed by heating up to 473K with KOH in ethylene glycol gives propane. Identify the compound.</p> <p><input type="checkbox"/> Methanal  <input type="checkbox"/> Ethanal  <input checked="" type="checkbox"/> Acetone  <input type="checkbox"/> Propanal</p>
Q29.	<p>The first step of the acid catalysed hydration of alkenes, involves the protonation of alkene to form a carbocation by electrophilic attack of _____</p> <p><input type="checkbox"/> <math>H_2O</math>  <input checked="" type="checkbox"/> <math>H_3O^+</math>  <input type="checkbox"/> <math>OH^-</math>  <input type="checkbox"/> <math>H^+</math></p>
Q30.	<p>From which type of phosphorus is alpha -black phosphorus formed?</p> <p><input type="checkbox"/> White phosphorus  <input type="checkbox"/> Phosphide  <input type="checkbox"/> Black phosphorus  <input checked="" type="checkbox"/> Red phosphorus</p>

