

## CHEMISTRY

- As per the Bohr's model, the minimum energy (in eV) required to remove an electron from the ground state of doubly ionized Li atom ( $Z = 3$ ) is  
A) 1.51      B) 13.6      C) 40.8      D) 122.4
- The hybridization of **Xe** in **XeF<sub>4</sub>** is  
A)  $sp^3d$       B)  $dsp^2$       C)  $sp^3d^2$       D)  $sp^2d^3$
- The X-ray beam coming from an X-ray tube will be  
A) monochromatic  
B) having all wavelengths smaller than a certain maximum wavelength  
C) having all wavelengths larger than a certain minimum wavelength  
D) having all wavelengths lying between a minimum and a maximum wavelength
- Which one of the following causes increase in entropy?  
A) A liquid crystallizes into a solid  
B) Water vapor condensation into liquid  
C) Decomposition of  $NaHCO_3$  at  $102^\circ C$   
D) Diffusion of two similar gas mixture into each other in a closed container isolated from the surroundings
- The reaction that takes place at anode is  
A) ionization      B) reduction      C) oxidation      D) hydrolysis
- Which of the following statement(s) is/are correct about *trans*-1,2-dimethylcyclohexane?  
I. Two methyl groups can exist in diaxial orientation.  
II. Two methyl groups can exist in axial-equatorial or equatorial-axial orientation.  
III. Two methyl groups can exist in diequatorial orientation.  
A) I only      B) II only      C) I and II only      D) I and III only
- Find the correct order of their boiling points of the following alcohols:  
methanol, *n*-propyl alcohol, *iso*-propyl alcohol  
A) methanol < *n*-propyl alcohol < *iso*-propyl alcohol  
B) methanol > *n*-propyl alcohol > *iso*-propyl alcohol  
C) methanol < *iso*-propyl alcohol < *n*-propyl alcohol  
D) methanol > *iso*-propyl alcohol > *n*-propyl alcohol
- Reaction of \_\_\_\_\_ with Grignard reagent followed by hydrolysis yields ketone.  
A) esters      B) aldehyde      C) alkyl nitrile      D) acid chloride
- Benzoic acid can be prepared from toluene by treatment with  
A)  $KMnO_4$ -KOH      B) Grignard reagent in ether followed by dry ice and acid hydrolysis  
C) Tollens' reagent      D)  $HBr/KCN$  followed by acid hydrolysis
- The number of amino acid units present in insulin is  
A) 42      B) 51      C) 8      D) 32