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| **School of Pedagogical Sciences (SPS)**  **M.G University Kottayam as a part of Ph. D Programme**  Research Scholar  **: Shanavas K.E**  Supervising Teacher **: Dr Sajna Jaleel Professor SPS** | | | |
| **Action Script : E Content Lesson based on CDM 7 C**  Name of Teacher**:** Shanavas K.E Standard: XI Science  Subject: Chemistry Strength: 59  Topic: Dipole moment and Fajan rules Time: 6 minutes Chapter: Chemical Bonding and Molecular structure | | | |
| Audio | Video | Tg-Lg activities | Phases of CDM |
| Dear Students,  Welcome to the world of Chemistry chapter (4) Chemical bonding and molecular structure. This is the E content lesson based on CDM (7) Students, we can study about Dipole moment and Fajan’s rules.  Can you give examples of polar and nonpolar bond?  What is polar and non-polar bond?  Can you give example of polar bond?  Who discovered dipole moment?  What is Dipole moment?  Can you define Dipole moment?  Can you give the equation of Dipole moment?    Calculate Dipole moment of BeF2  What about dipole moment H2O ?  The Dipole moment of NF3 is lower than NH3. Can you explain  What is Fajan rules ?  Can you give the main postulates of Fajan’s rules?  What is polarizing power ?  Can you compare polarizing power of Noble gas, Alkali metals, Alkaline earth metals and Transition metals ?  What is Polarizability ?  Students, see the summary chart of Fajan rules  **Time gap Online Assignment**  Give the increasing order of covalent character of NaCl, BeCl2, on the basis of Fajan’s rules.  Among NaCl, LiCl, BeCl2 Which is most covalent character | Teacher presents  Slide    Slide  H-H bond is non polar bond H-F bond is polar bond  Slide  Definition  The pair of bonding electron is shared equally (nonpolar bond) or not shared equally (polar bond) between two atoms. The dissimilar electronegative between atoms. Since F is the most electro negative element in Periodic table acquires a negative charge. This type of bond is known as polar bond.  5.3: Polarity and Intermolecular Forces - Chemistry LibreTexts  Slide    Peter Debye, the Dutch chemist received Nobel prize in 1936 for his work on X-ray diffraction and dipole moments.  Slide  Definition  Dipole moment is the product of charge and distance between the centres of positive and negative charge.  Dipole moment = charge q x distance of separation r    slide    Two equal bond dipoles in opposite direction, cancel each other. Dipole moment of BeF2 is zero.    The structure of H2O is V shaped due to two lone pair electrons.  = +1.85 D  Slide    In NH3, dipole moment in same direction = +1.49 D In NF3, Lone pair of N in one direction and three N-F bonds in opposite direction. Some dipole cancels each other. Hence dipole moment of NF3 lower then NH3  Slide  The percent of covalent character of the ionic bond is discussed by Fajan’s Rules  The smaller the size of cation and larger the size of anion, the greater the covalent character of ionic bond. The greater the charge on the cation, the greater is the covalent character.  Polarizing power is the cation ability to distort an anion.  Polarizing power ᶑ covalent character.  Also polarizing power ᶑ 1/size of cation. The size of cation is smaller, polarizing power increases and hence covalent character increases.  Transition Metal is more polarizing power than Noble gas, alkali or alkaline earth metals.  Slide Polarizability is defined as the anion tendency to become polarizes by the cation.  Larger the Anion, more will be its polarizability    Slide  Fajan’s rules summary    Slide  Polarizing power ᶑ Covalent character ᶑ 1/size of cation  order of size of cation is **Na+ > Li+ > Be2+** Therefore increasing covalent character is **NaCl < LiCl < BeCl2**  BeCl2 is most covalent character  **THANK YOU**  **LEARN WELL** | Gaining the attention to objectives  Presentation of slides  Asking question  Audio-video input  Developing the content  Audio-video input entering into the content  Presentation of Slides  Audio-video input giving equation  Audio-Video input giving more examples  Presentation of slides  Audio-video input  Audio-video input giving more examples  Developing the content.  Audio-Video input giving more applications or problems.  Presentation of slides  Audio-video input giving equations  Asking questions  Audio-Video input giving more applications and problems  Evaluating and assessing the content. | Phase I Establishes rapport with the students  Confrontation with stage relevant task  Presents a puzzling problem  Insisting to think  Giving perceptual dues or hints  Elicits students’ responses  **Phase II Inquiry**  Probes reasoning  Offer Counter Suggestions  Seeks Justification results in Assimilation  **Phase III Transfer**  Presents a related task  Seeks Justification  offer counter suggestions  Elicit Students responses  Giving perceptual clues or Hints  Seeks Justification results in Assimilation  Probes reasoning  Offer counter suggestions  Elicits students’ responses  Accommodation of new experience leading to ability to apply in different learning situations  Seeks justification result in Assimilation  Accomodation of new learning experiences. |