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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 4**  Name of Teacher**:** Shanavas K.E Standard: XI Science  Subject: Chemistry Strength: 59  Topic: Octet rule and its Limitations. Time : 6 minutes Chapter: Chemical Bonding and Molecular structure | | | |
| Audio | video | Tg-lg activities | Phases of CDM |
| Dear students, Good Morning All,  Welcome to the world of Chemistry: Chapter 4 Chemical Bonding and Molecular Structure. This is the E-Content Lesson based on CDM 4.  Learn chemistry in a simple way.  Students, have you heard about “octet rule” and its Limitations.  What is the best Lewis structure of SO2 obeying octet rule?  Can you define octet rule?  Can you give more examples.  Which of the following molecules contains an atom that does not obey octet rule?  Can you give the Limitations of octet rule.  Can you five examples?  Can you give another Limitation of octet rule?  Can you give examples?  Can you give another Limitation of octet rule?  How atoms attain stability?  **Time -gap online assignment**  Which is the period of elements show expanded octet?  Is it second period or third period of the elements?  Explain it taking as example of PF5? | Teacher presents  Slide  Octet rule and its Limitations.  Slide  Solved What is the best Lewis structure for SO_2 (obeying | Chegg.com  Slide  Correct option D  Slide  definition  The atom can combine either by transfer of valence electrons from one atom to another or gaining or losing electrons by ionic bond or by mutual sharing of valence electrons in order to have an octet in their valence shell by covalent bond. This is known as octet rule.  Slide  Citing examples  Slide  (KBr, CO2, C1F3, ICI, HCN)  Correct option is CIF3.  CIF3. Does not obey octet rule. It contains 10 electrons. Octet rule almost always for C, O, N, F, Na, K and Mg.  Covalent molecules often share electrons to obtain an octet. when atoms have 8 electrons in their highest energy level, they are said to have an octet.  Slide  Incomplete octet of the central atom.  Slide  Lewis Structure For LiCl: How to Draw the Lewis Structure for LiCl (Lithium  chloride) - YouTube  1 valance electron  Brcl3 Lewis Structure  3 valance electrons  Exceptions to the Octet Rule | Chemistry for Non-Majors | | Course Hero  2 valance electrons  Slide  Odd electron molecules of central atom.  Slide  Lewis’s structure of NO.  NO Lewis Dot Structure | Science Trends  N has odd electrons  Slide  Expanded octet  PCl5 P (Z= 15) 2,8,5  Five valence electrons. Phosphorus shares its 5 electrons with 5 Cl atom. (5+5) =10 electrons.  SF6 S(Z=16) 2,8,6  Six valence electrons. Sulphur shares its 6 electrons with 6 F atom.  (6+6) = 12 electrons.  Slide  Octet rule is based on the chemical inertness of Noble gas. but some Noble gases (Xenon, Krypton) combine with O2 and F2 to form XeF2, XeF6, KrF2, XeOF2, XeOF4 and XeO3.  Slide  Third period element show expanded octet because of vacant 3d orbital in its valance shell.  In PF5, the central atom P(Z=15) 2,8,5  Five valence electrons.  Here one 3S electron get promoted to 3d orbital giving 3s13px1 3py1 3pz13d1. Five half-filled orbitals in PF5 (5+5 = 10 electrons). Expanded octet  Thank you  Learn well. | Gaining the attention to objectives  Presentation of slides  Audio-Video input entering into the content  Audio-video input  Developing the content  Asking questions  Audio-Video input entering into the content  Presentation of slides.  Audio-Video input giving more examples.  Audio- video input    Audio-Video Input giving more examples  Asking questions    Audio-Video input giving more applications and problems.  Evaluate and assess the content. | **Phase 1**  Establishes rapport with the students.  Confrontation with stage relevant task  Presents a puzzling problem?  Insisting to think  Offer counter suggestion.  Elicits students’ responses  **Phase II**  **Inquiry**  Seeks reasoning  Giving cues or hints.  Seeks justification results in assimilation  **Phase III**  **Transfer**  Presents a related task  Probes reasoning  Seeks Justification  Giving cues or Hints  Offer counter suggestions.  Insisting to think  Accommodation of new learning experience leading to ability to apply in different learning situations. |