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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 T 5**  Name of Teacher**:** Shanavas K.E Standard: XI Science  Subject: Chemistry Strength: 59  Topic: Internal energy change ∆U and its measurement Time : 6 minutes Chapter: Thermodynamics | | | |
| Audio | video | Tg-lg activities | Phases of CDM |
| Hello plus one students,  Welcome to world of plus one Chemistry: Chapter 6 T. D. This is the E Content Lesson based on CDM 5  Today I start with interesting and easy topics of Thermo- dynamics, first thermodynamic function internal energy change ∆U and its measurement.  Can you give the equation of first law of T.D  ∆U = q + w 🡪 1  If w = 0 no work is done in the system. Then ∆U = qv  The internal energy changes by amount equal to the amount of heat absorbed by the system.  If ∆U = 0 there is no increase in internal energy of the system then q = -w  The work done (-w) means?  Work done by the system or on the surrounding is equal to heat absorbed by the system  If w = - P∆V. Assume the work is only pressure-volume change and is done by the system. Equation becomes ∆U = q - P∆V  Now if the process is carried and under constant volume ∆V = 0 Then ∆U = qv the change in internal energy of a system is equal to the heat absorbed by the system at constant temperature and volume.  How will you measure ∆U using bomb calorimeter.  The temperature of water in calorimeter is noted and the compound taken in a platinum cup is ignited by passing electric spark with help of filaments.  The heat evolved, exothermic raises the temperature of water in the calorimeter which is noted very carefully with help of thermometer. By knowing heat capacity of calorimeter, the amount of heat evolved in the reaction is calculated. Since combustion reaction is carried out at constant volume, it will give a measure of ∆U.  Amount of heat evolved on combustion ∆U = Cx∆TxM  W  Where C heat capacity of calorimeter  ∆T rise in temperature  **Time gap online Assignment**  Give the equation to measure U using bomb calorimeter.  Draw the neat diagram to measure U using bomb calorimeter. | Teacher presents  Slide  First law of T.D  ∆U = q + w  Slide  w = 0 Then ∆U = qv    Slide  ∆U = 0 then q = -w  Slide  w = - P∆V  ∆U = q - P∆V  ∆V = 0 then ∆U = qv    Slide  Can you define ∆U  Slide  Statement of change in internal energy.  Video presentation of ∆U using bomb calorimeter  Diagram showing Bomb calorimeter.        Slide  Equation  Slide  Diagram  Thank you.  Learn well  Revise E content Lesson.  Enjoy Chemistry in a simple way. | Gaining the attention to objectives  Presentation of slides  Asking questions  Developing the content  Audio-Video input entering into the content  Audio-video input giving more applications and problems  Developing the content  Asking questions  Audio-Video input entering into the content  Evaluate and assess the content. | **Phase 1**  Establishes report with the students.  Confrontation with stage relevant task  Presents a puzzling problem?  Insisting to think  Elicits students’ responses  Seeks probing  Giving perceptual cues or hints.  Offer counter suggestion  Probe’s reasoning  Seeks justification  Offer counter suggestion  insisting to think  Seeks justification results in assimilation and then accommodation. |