Date: 18-02-2019

**Summary Report on WIT & WIL**

**(Daily Report)**

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| **Name of the Faculty: S.Pratyusha** | **Name of Subject: Engineering Chemistry** |
| **Class/Section: Me-B** | |

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|  | Grid Reference No.: | 3.1 |
|  | Scenario Reference No.  (Mapping with Syllabus) |  |
|  | Topic covered in every class | Coal analysis |
|  | Brief write-up (500 words) for every class: | **ULTIMATE ANALYSIS (Quantitative /Elementary analysis)**  **ultimate analysis**. The **significance** of this **analysis** is that it is useful in classification of coal and combustion calculations as it basically determines the % of elements. It is required for detailed and accurate heat balance for the equipment in which the fuel is used.  It refers the determination of weight percentage of carbon, hydrogen, nitrogen, oxygen and sulphur of pure dry coal. This analysis gives the elementary, ultimate constituents of coal. This analysis is essential for calculating heat balances in any process for which coal is employed as a fuel.  It is useful to the designing of coal burning equipments and auxiliaries.  **Significance of Total Carbon**: It is the sum total of fixed carbon and the carbon present in the volatile matters like CO, CO2, hydrocarbons. Thus, total carbon is always more than fixed carbon in any coal. High total carbon containing coal will have higher calorific value.  **Significance of Hydrogen:**It increases the calorific value of the coal. It is associated with the volatile matter of the coal. When the coal containing more of hydrogen is heated, it combines with nitrogen present in coal forming ammonia. Ammonia is usually recovered as (NH4)2SO4, a valuable fertilizer.  **Significance:** Presence of nitrogen decreases the calorific value of the coal. However,when coal is carbonized, its N2 and H2 combine and form NH3. Ammonia is recovered as (NH4)2SO4, a valuable fertilizer.  **Significance:**  It increases the calorific value of the coal, yet it has the following undesirable effect-The oxidation products of sulphur (SO2, SO3) especially in presence of moisture forms sulphuric acid which corrodes the equipment and pollutes the atmosphere.  **Significance:**  The less the oxygen content, the better is the coal. As the oxygen content increases, its moisture holding capacity also increases. |
|  | Relevant additional illustration if any: |  |
|  | Video Links/ Web Links if any: | <https://www.youtube.com/watch?v=-0CwOvo3aKs&t=94s>  <https://www.youtube.com/watch?v=J2-tDV8KYEA> |
|  | Signature of Repository Administrator: |  |