**METALLURGY DEPARTMENT**

Name of the teacher-PARASMITA BISWAL

Semester-3rd -Session-2022-23

From-15/09/2022 to 22/12/2022

Subject-Theory-3(FUELS AND REFRACTORIES)

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| **Wk no** | **Day** | **Chapters** | **Topics to be covered** |
| **WK-1**  **15/09to 17/09/2022** | Day-1  17/09/2022 | Chapter-01:  Fuels | Definition of the Fuel. |
| **WK-2**  **19/09 to 24/09/2022** | Day-1  19/9/2022 | Classification and types of fuel. |
| Day-2  20/9/2022 | Discussion about importance of Solid, Liquid and Gaseous fuels |
| Day-3  21/9/2022 | Discussion on different fuels and its resources of india |
| Day-4  24/9/2022 | Chapter-02:  2.1 :Solid Fuels | Explaining the origin of coal |
| **WK-3**  **26/9/2022 to 01/10/2022** | Day-1  26/9/2022 | Definition and the composition of coal |
| Day-2  27/9/2022 | Discussion on characteristics and significance of constituents |
| Day-3  28/9/2022 | Distinguish between proximate and ultimate analysis |
| Day-4  01/10/2022 | calorific value of coal, its definition ,types , symbol and difference on GCV NCV |
| **WK-4**  **02/10/2022 to 08/10/2022** |  |  | PUJA VACATION |
| **WK-5**  **10/10/2022 to 15/10/2022** | Day-1  10/10/2022 | Chapter-02:  2.1 :Solid Fuels | Discussion on coking properties and swelling index of coal |
| Day-2  11/10/2022 | Class test -01 doubt clearing class |
| Day-3  12/10/2022 | Discussion on the scope and objectives of carbonization of coal |
| Day-4  15/10/2022 | The carbonization of coal in detail its process. |
| **WK-5**  **17/10/2022**  **To 22/10/2022** | Day-1  17/10/2022 | Chapter-02:  2.2: Coke | Differentiate between high temperature carbonization and low temperature carbonization |
| Day-2  18/10/2022 | State the merits and demerits of H.T.C and L.T.C |
| Day-3 19/10/2022 | Discuss different tests carried out for coke(Shatter and Micum index) |
|  | Day-4 22/10/2022 | Chapter-02:  2.1 :Solid Fuels | Explain origin and constitution of petroleum |
| **WK-6**  **24/10/2022 to 29/10/2022** | Day-1  25/10/2022 | Chapter-03:  Liquid Fuels | Discussion on the properties of petroleum products |
| Day-2  26/10/2022 | Discussion on the distillation process of crude petroleum-01 |
| Day-3  29/10/2022 | Discussion on the distillation process of crude petroleum-02 |
| **WK-7**  **31/10/2022 to 05/11/2022** | Day-1  31/10/2022 | Production and uses of coal tar in details. |
| Day-2  01/11/2022 |  | Doubt clearing class ,Important question discussion |
| Day-3  02/11/2022 | Chapter-04:  Gaseous Fuels | Explain the production and utilization of following gaseous fuels: Methane, water gas, producer gas |
| Day-4  05/11/2022 | Explain the production and utilization of following gaseous fuels: carbureted water gas, coke oven gas |
| **WK-8**  **07/11/2022 to 12/11/2022** | Day-1  07/11/2022 | Explain the production and utilization of following gaseous fuels: blastfurnace gas, natural gas, mixed gas. |
| Day-2  09/11/2022 | Chapter-05:  Combustion | Discuss the elementary principle of combustion, Hess’s law of constant heat summation, Kirchoff’s law. |
| Day-3  12/11/2022 | Work out simple combustion calculation. |
| **WK-9**  **14/11/2022 to 19/11/2022** | Day-1  14/11/2022 | Chapter-06:  Refractories | Define and Classify Refractories |
| Day-2  15/11/2022 | Explain the desirable properties of Refractories in details |
| Day-3  16/11/2022 | Discuss the raw – materials, methods of manufacturing and properties of silica, fire clay, magnesia |
| Day-4  19/11/2022 | Discuss the raw – dolomite, chrome magnesite |
| **WK-10**  **21/11/2022 to 26/11/2022** | Day-1  21/11/2022 | Discuss the raw – graphite and magnesia carbon bricks. |
| Day-2  22/11/2022 | Discuss about the special refractories like high alumina |
| Day-3  23/11/2022 | Discuss about the special refractories like mullite, SIC, Zirconia |
| Day-4  26/11/2022 |  | Doubt clearing and revision |
| **WK-11**  **28/11/2022 to 03/12/2022** | Day-1  28/11/2022 | Chapter-6.1 & 6.2 :  Special Refractories | Criteria for selection and types of refractories selected for reheating furnaces |
| Day-2  29/11/2022 | Criteria for selection and types of refractories selected for blast furnace, L.D., open hearth |
| Day-3  30/11/2022 | Criteria for selection and types of refractories selected for arc furnace, ladle, soaking pit, coke oven |
| Day-4  03/12/2022 | Criteria for selection and types of refractories selected for reheating furnaces, copper smelting flash and reverberatory furnaces. |
| **WK-12**  **05/12/2022 to 10/12/2022** | Day-1  05/12/2022 |  | Criteria for selection and types of refractories selected for flash smelting and reverberatory furnaces. |
| Day-2  06/12/2022 |  | Class test and revision about chapter -01,02,03,04 |
| Day-3  07/12/2022 |  | Discussion on the criteria of selection of metallurgical coal. |
| Day-4  10/12/2022 | Chapter-3.1 :  Testing of liquid fuels | Define specific gravity, viscosity, flash point, cloud point |
| **WK-13**  **12/12/2022 to 17/12/2022** | Day-1  12/12/2022 | Define pour point, aniline point, octane number and cetane number |
| Day-2  13/12/2022 | Discuss the methods of testing of following properties: Specific gravity |
| Day-3  14/12/2022 | Discuss about viscosity, flash point, cloud point and pour point |
| Day-4  17/12/2022 |  | Important question discussion |
| **WK-14**  **19/12/2022 to 24/12/2022** | Day-1  19/12/2022 |  | Practicing combustion calculation |
| Day-2  20/12/2022 |  | Revision about chapter -05 and 06 |
| Day-3  21/12/2022 |  | Important question discussion |