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| Sl no | topic | reference | assignment | Comment |
| 1 | Define different terms of thermodynamics systems | TB,RB | Yes | two period |
| 2 | State ideal gas laws | RB | yes | two period |
| 3 | Explain Extensive and intensive properties | TB,RB | yes | One period |
| 4 | Define and explain Homogenous and heterogeneous systems | TB,RB | yes | One period |
| 5 | Explain similarities between heat and work | TB | yes | One period |
| 6 | Define internal energy. | RB | No | One period |
| 7 | Define heat capacity and specific heat. | TB,RB | Yes | One period |

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| **8** | Define adiabatic Isothermal process. | TB,RB | Yes | One period |
| **9** | Define heat of formation. | TB | yes | One period |
| **10** | Define heat of reaction. | TB | Yes | One period |
| **11** | Limitation in the first law of thermodynamics  | TB,RB | yes | One period |
| **12** | Explain the postulate of 2nd law of thermodynamics. | TB,RB | yes | One period |
| **13** | Explain Carnot cycle.  | TB,RB | yes | Two period |
| **14** | Explain absolute scale of temperature.  | RB | yes | Two periods |
| **15** | State and explain free energy | TB,RB | Yes | One period |
| **16** | Define entropy and chemical potential. | TB,RB | yes | One period |
| **17** | State the importance of thermodynamics in ceramics in ceramic industry. | TB,RB | yes | Two period |
| **18** | State and explain 3rd law of thermo dynamics. | rb | yes | One period |
| **19** | Define phases, components, degree of freedom | TB,RB | Yes | One period |
| **20** |  Phase diagram of pure substance ,Eutectic system, leaver rule. | Tb,RB | yes | One period |
| **21** | Phase rule, one component two component and three component system | TB,RB | Yes | Two period |
| **22** | Explain importance of phase diagram and its application.  | TB,RB | No | One period |
| **23** |  SiO2, Al2O3-SiO2, CaO-MgO and MgO-Al2O3 system | TB | Yes | Three period |
| **24** | Define and classify colloids | Tb | No | One period |
| **25** | State & Explain different method of preparation of colloids in ceramic making and other areas | tb | yes | Two period |
| **26** | Base exchange capacity, flocculation, deflocculation & clay water system | Tb,RB | Yes | Two period |
| **27** | Introduction to thermo – gravimetric analysis. | TB | Yes | One period |
| **28** |  Basic idea on thermal method of analysis. | TB | yes | One period |
| **29** | State and Explain spectrophotometer concept in spectroscopy.  | Tb | No | One period |
| **30** | Define spectroscopy and describe various type types of spectrophotometers | Tb | yes | One period |
| **31** | Description of atomic absorption spectrophotometers | Tb | yes | One period |
| **32** | Introduction DTA, TGA, XRD, & XRF. | Tb | yes | Three period |

 1. Engineering thermodynamics P.K. Nag. Tata Mc grawhill Publisher(TB)

 2. Engineering Chemistry P.C. Jain and Monica Jain. Dhanpat Rai Publisher (TB)

3. Physical chemistry Puri, Sharma, Pathania Vishal Publishing company(TB)

 4. Instrumental method of chemical analysis B.K. Sharma. Krishna Educational Publisher(TB)

 5. Introduction to Ceramic W.D. Kingery. Wiley Publisher(TB)

6.thermodynamics by B.S. Ubhi(RB)

7.principles of material science and engineering by Navneet Gupta and R.C.Gupta(RB)

8.properties of ceramic raw material by w. ryan.(RB)

Classes are taken with 44 periods. one period is for internal test conducted and 15 period is for revision of syllabus.