**L.E.COLLEGE MORBI**

**MECHANICAL ENGINEERING DEPARTMENT**

**MID SEM EXAMINATION SEPT-2018 BE SEM 3rd MECHANICAL**

**MATERIAL SCIENCE & METALLURGY 2131904**

**TOTAL MARKS=30** **TIME: 1.5 Hrs** **DATE: 27/09/2018**

**Instructions: 1. Make suitable assumptions wherever necessary.**

 **2. Figures to the right indicate full marks and Answer must be in brief.**

|  |  |  |
| --- | --- | --- |
|  | ATTEMPT ANY SIX  |  |
| **Q1** | Explain and differentiate Edge dislocation and Screw dislocation with neat sketch CO1 | **05** |
| **Q2** | Find atomic packing factor of FCC and BCC. CO1 | **05** |
| **Q3** | Explain substitutional solid solution and Hume Rothery Rule for the feasibility of it. CO2 | **05** |
| **Q4** | What is powder metallurgy? Write advantage, limitations and applications of powder metallurgy. CO3 | **05** |
| **Q5** | Draw a neat and labeled Iron-Iron Carbide diagram and explain eutectic and eutectoid reaction in it. CO2 | **05** |
| **Q6** | Explain the difference between slip and twinning mechanisms using sketch. CO1 | **05** |
| **Q7** | What NDT? Classified NDT. Explain X-ray Radiography. CO3 | **05** |
| **Q8** | Draw cooling curve of 1) Pure Meta 2) An alloy of two metals which completely soluble in liquid and solid state CO2 | **05** |
| **Q9** | Explain the criteria for selection of materials for engineering applications. CO1 | **05** |