Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_

G:\logo and QP Template\logo 3 Feb 2018 final.tif

**End Semester Examination – Nov/Dec – 2018**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| **Code :** | **16NT1001** | **Duration :** | **3hrs** |
| **Sub. Name :** | **EVOLUTION OF MATERIALS** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Differentiate natural and synthetic fibers. Give examples. | CO4 | 4 |
| b. | Explain in detail the primary classification of materials with suitable examples. | CO1 | 16 |
| (OR) | | | | |
| 2. | a. | Briefly discuss the classification of composites based on the matrix material with suitable examples. | CO3 | 4 |
| b. | Discuss in detail about the different types of implant materials with suitable examples. | CO4 | 16 |
| 3. | a. | List the applications of asbestos and mention its disadvantages. | CO5 | 4 |
|  | b. | Determine the coordination number and atomic packaging factor for Simple cubic and Body centered cubic systems. | CO2 | 16 |
| (OR) | | | | |
| 4. | a. | Differentiate thermo plastics and thermo setting plastics. | CO3 | 4 |
|  | b. | With neat sketch, explain in detail the seven different crystal systems mentioning their lattice parameters and angles. | CO2 | 16 |
| 5. | a. | Briefly discuss the applications epoxy resin. | CO5 | 4 |
|  | b. | Explain in detail, the different types of defects in materials. | CO5 | 16 |
| (OR) | | | | |
| 6. | a. | Recall the structure of nylon and mention its two main degradation processes. | CO5 | 4 |
|  | b. | Discuss in detail the different types of reinforcements based on dimensions in fiber composites. | CO5 | 16 |
| 7. | a. | Discuss in detail, the formation of depletion region and the I-V characteristics of a Si diode. | CO5 | 10 |
|  | b. | Describe the steps in preparing MR fluids. Mention their applications. | CO2 | 10 |
| (OR) | | | | |
| 8. | a. | Explain the Czochralski’s method of making large single crystals. Discuss the different steps in making of silicon wafer. | CO6 | 10 |
|  | b. | Explain the working principle of scanning electron microscope. Mention its advantages and disadvantages. | CO5 | 10 |
|  | | **Compulsory**: |  |  |
| 9. | a. | Describe in detail, the various properties of graphene. Mention its applications. | CO5 | 10 |
|  | b. | Describe a smart building and explain its various characteristics. | CO2 | 10 |