

Code No: 182AJ

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech I Year II Semester Examinations, September - 2023

ENGINEERING MATERIALS

(Common to ME, AE)

Time: 3 Hours

Max. Marks: 60

Note: This question paper contains two parts A and B.

i) **Part - A** for 10 marks, ii) **Part - B** for 50 marks.

- Part-A is a compulsory question which consists of ten sub-questions from all units carrying equal marks.
- Part-B consists of **ten questions** (numbered from 2 to 11) **carrying 10 marks each**. From each unit, there are two questions and the student should answer one of them. Hence, the student should answer five questions from Part-B.

PART - A**(10 Marks)**

- 1.a) What is Ashby chart? [1]
- b) What is malleability? [1]
- c) Define cast iron. [1]
- d) What are the applications of HSS? [1]
- e) Define composites. [1]
- f) What are the functions of matrix in composites? [1]
- g) Define ceramics. [1]
- h) What is the classification of ceramic materials? [1]
- i) Define nanomaterial. [1]
- j) What are the properties of nano materials? [1]

PART - B**(50 Marks)**

2. Explain the classification of engineering materials and describe the importance of any two of them in detail in engineering applications. [10]
- OR**
3. Explain the Stress–Strain Behavior of ductile and brittle materials with the help of a diagram. [10]
 4. Explain the composition, properties and applications of grey cast iron. [10]
- OR**
5. Explain the composition, properties and applications of few important titanium alloys. [10]
 6. Explain the filament winding process with suitable sketch and its applications. [10]
- OR**
7. Explain the classification of composites based on matrix and reinforcement with suitable examples. [10]

8. Explain any two ceramic fabrication techniques with neat sketches. [10]

OR

9. Explain any two processing methods of polymers with neat sketches. [10]

10. Explain the properties and applications of bio materials. [10]

OR

11. Explain the properties and applications of few semiconductor nanomaterials. [10]

---ooOoo---

UNIVERSITY USED PAPERS-2023