



INDIAN INSTITUTE OF TECHNOLOGY, KHARAGPUR
End-Autumn Semester 2022-23

Date of Examination : _____ Session (FN/AN) _____ Duration 3 hrs
Subject No. : EP 60044 Subject Name : Frugal Engineering
Department/Center/School : Rajendra Mishra School of Engineering Entrepreneurship
Specific charts, graph paper, log book etc., required _____
Special Instructions (if any) : _____

1. Elucidate the phases of 'Prototype' and 'Test' in Design Thinking Paradigm [Marks: 5+3]
2. Expound a set of suitable steps associated with Innovation Engineering [Marks: 9]
3. a) 'Design for Manufacturing' is a mainstay of Frugal Engineering – Explain, and b) illustrate its process steps using a diagram. [Marks: 3 + 5]
4. a) Value Engineering (VE) for 'affordability' resting on quality as the fulcrum is becoming increasingly important in value sensitive market – Explain.
b) Describe the steps in VE. [Marks: 3 + 5]
5. Explicate a recognised Engineering Design Process Model that can be applied in frugal innovation. [Marks: 9]
6. a) Delineate the significance of TRIZ and b) illustrate the technical contradiction matrix using suitable diagram [Marks: 3 + 5]