Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII (NEW) - EXAMINATION - SUMMER 2017 Subject Code: 2172108 Date: 04/05/2017 **Subject Name: Metal Working Processes** Time: 02.30 PM to 05.00 PM **Total Marks: 70 Instructions:** 1. Attempt all questions. 2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks. 0.1 Illustrate with necessary graphs recovery, recrystallization and grain growth. 07 (a) Classify metal forming processes. Briefly explain flow curve for material. 07 With neat sketch explain the forging operation. 0.2 (a) 07 Discuss the importance of flash in forging and lubrication in extrusion. **(b)** 07 OR (b) Compare and contrast open die forging and close die forging. 07 0.3 What is the importance of preform design in forging? Write general rules for 07 close die design. Derive equation to determine length of arc of contact and relation between angle **(b)** 07 of bite and frictional coefficient for rolling. **Q.3** Classify the different types of rolling mills. Explain any one with sketch in 07 (a) detail. Discuss rolling variables in detail. 07 **(b)** 0.4 What is extrusion? Explain different extrusion process and explain role of 07 lubricant. Write a short note on hydrostatic extrusion process. 07 **(b) Q.4** What is break through pressure? Illustrate the graph for direct and indirect 07 extrusion while extrusion pressure acts and explain it in detail. **(b)** Discuss extrusion defects and its remedies. 07 Draw the of cross section view of a wire drawing die and explain function of **Q.5** 07 bell, approach angle, bearing region and back relief in the die. With neat sketch explain the types of tube-drawing processes. 07 OR What are the required properties for die selection? Illustrate with figure 07 0.5 different types of die failure. With neat sketch discuss shearing and stretch forming. 07
