

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII(NEW) EXAMINATION – SUMMER 2019****Subject Code:2171913****Date:10/05/2019****Subject Name: Metal Forming Analysis****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.

- Q:1** (a) Differentiate direct and indirect extrusion process. **03**
 (b) Explain a Forming Limit diagram. **04**
 (c) What is Drawability? List and Discuss factor Affecting to Drawability **07**
- Q:2** (a) Define the following terms: (i) Hot forming, (ii) Cold Forming, **03**
 (iii) Flow Stress
 (b) Explain various Rolling defects. **04**
 (c) Give short note on Two-Dimensional Mohr's circle method for stress analysis. **07**
- OR**
- (c) Explain VonMises & Tresca theory of yielding. **07**
- Q:3** (a) Explain clearance in sheet metal operation. **03**
 (b) Explain spring back effect in bending process. **04**
 (c) A cold roll sheet with shear strength of 350MPa & thickness of 3mm is to be Subjected blanking operation. The diameter of blank to be obtained is 130mm & Clearance 0.075mm. What is the appropriate die & punch diameter & Punch force for operation? **07**
- OR**
- Q:3** (a) Determine Engineering Strain and True strain. **03**
 (b) Explain Anisotropy in sheet metal **04**
 (c) Explain typical arrangement of roll & roll mills with neat sketches. **07**
- Q:4** (a) What do you understand by shear on punch and die? **03**
 (b) Explain Wire Drawing processes in brief. **04**
 (c) Explain various operations performed on sheet metal press machine. **07**
- OR**
- Q:4** (a) Define angle of bite and discuss its effect in rolling process. **03**
 (b) What are the benefits of hydrostatics extrusion process? **04**
 (c) Explain friction board drop hammer for forging **07**
- Q:5** (a) Explain Blanking operation with neat sketch. **03**
 (b) State difference between compound and progressive dies. **04**
 (c) Discuss analysis of strip rolling derive equation for projected arc length. **07**
- OR**
- Q:5** (a) Define (i) dry drawing (ii) wet drawing (iii) tube drawing. **03**
 (b) How is impression die forging different from closed die forging **04**
 (c) Explain about importance of Upper bound and Lower bound theorem in metal forming. **07**