

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (NEW) EXAMINATION – SUMMER 2022****Subject Code:2171913****Date:01/06/2022****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.
4. Simple and non-programmable scientific calculators are allowed.

- Q.1** (a) Explain need of metal forming processes in industries. **03**
 (b) Differentiate between cold forming, hot forming and warm forming. **04**
 (c) Explain electro-hydraulic forming process also write its advantages and disadvantages. **07**

- Q.2** (a) Define (i) dry drawing (ii) wet drawing (iii) tube drawing. **03**
 (b) Give classification of Rolling Mills. **04**
 (c) Explain VonMises & Tresca theory of yielding. **07**

OR

- (c) Describe the stress strain relations for rigid perfectly plastic material. **07**

- Q.3** (a) Explain a Forming Limit diagram. **03**
 (b) Explain Anisotropy in sheet metal. **04**
 (c) Derive the formula for Rolling Load using Slab Method with usual notations. **07**

OR

- Q.3** (a) Define angle of bite and discuss its effect in rolling process. **03**
 (b) Differentiate direct and indirect extrusion process. **04**
 (c) What do you understand by shear on punch and die? Discuss the relative advantages of providing shear on punch and die. **07**

- Q.4** (a) What is upset forging? **03**
 (b) How is impression die forging different from closed die forging? **04**
 (c) Explain friction board drop hammer for forging. **07**

OR

- Q.4** (a) What are the benefits of hydrostatics extrusion process? **03**
 (b) Why lubricants use in extrusion process? **04**
 (c) What are the different methods of tube drawing? Describe the salient feature of each method. **07**

- Q.5** (a) What do you understand by spring back in press working? **03**
 (b) Discuss on materials used for making wire drawing dies. **04**
 (c) How does hydrostatic pressure affect the yield strength of metal? **07**

OR

- Q.5** (a) Define (1) Notching (2) Nibbling (3) Slitting, for press work. **03**
 (b) Why friction measurement is necessary in forming process? **04**
 (c) Explain various operations performed on sheet-metal press machine. **07**
