Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI (OLD) - EXAMINATION – SUMMER 2017

Subject Code: 162503 **Date: 05/05/2017**

Subject Name: Metal Forming Processes

Time: 10:30 AM to 01:00 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)**	Explain how the principle of "Plastic Deformation" is used in Metal Forming Processes. Also classify metal forming processes in brief.	**07**
	(b)	Write difference between "Hot working" & "Cold Working" considering (i) Mechanical Properties (ii) Recrystalization temp. (iii) Grain Structure	**07**
Q.2	**(a)**	Write difference between "Ductile Fracture" & Brittle Fracture". Also explain each fracture's effect on service life of component.	**07**
	(b)	Explain the concept of creep. What are the methods used for improving creep resistance.	**07**
		OR	
	(b)	Draw the fatigue failure curve. Also describe the testing of fatigue.	**07**
Q.3	**(a)**	With neat sketch elaborate Planetary Rolling Mill.	**07**
	(b)	What are the various defects found in Rolled Products? Also suggest remedies of same.	**07**
		OR	
Q.3	**(a)**	How forging is advantageous compared to other processes? Explain any two forging equipments with neat diagrams.	**07**
	(b)	With the help of neat sketch explain force analysis of forging processes.	**07**
Q.4	**(a)**	What is the difference between direct extrusion and indirect extrusion?	**07**
	(b)	Explain the hydrostatic extrusion with its merits and demerits.	**07**
		OR	
Q.4	**(a)**	What is the difference between deep drawing and shallow drawing? Compare both the processes with a sketch.	**07**
	(b)	Give detail classification of drawing process.	**07**
Q.5		Explain the following Sheet Metal Operations (ANY THREE) 1. Metal Spinning 2. V-Bending 3. Stretch Forming 4. Press Brake Forming	**14**
		OR	**14**
Q.5		Explain any two of the following processes:- 1. HVF 2. HERF 3. Magnetic Pulse Forming	

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