Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER – VI EXAMINATION – WINTER 2015

Subject Code:163402 **Date:17/12/ 2015**

Subject Name: Metal Forming Processes

Time:2:30pm to 5:00pm **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)**	Discuss on Von-Mises yield criteria used in metal forming.	**07**
	(b)	Classify forming process with its specific applications.	**07**
Q.2	**(a)**	Write on merits and demerits of cold working and hot working.	**07**
	(b)	What is the significance of "grain flow" and "recrystallisation temperature" in metal forming?	**07**
		OR	
	(b)	Discuss the effect of strain rate and metallurgical structure on metal forming.	**07**
Q.3	**(a)**	Explain the operations that are normally employed in forging.	**07**
	(b)	Explain some defects that can be present in rolled products with their remedies.	**07**
		OR	
Q.3	**(a)**	How forging improves the mechanical properties of components?	**07**
	(b)	Explain the principle of rolling with a neat sketch.	**07**
Q.4	**(a)**	Compare open and closed die- forging processes with neat sketch.	**07**
	(b)	Classify extrusion processes including its principle, merits and demerits.	**07**
		OR	
Q.4	**(a)**	Explain with sketches the difference between direct and indirect extrusion.	**07**
	(b)	Explain how the variables that affect the extrusion process.	**07**
Q.5	**(a)**	Write on deep drawing process with a neat sketch.	**07**
	(b)	How high velocity forming process differs from conventional forming process?	**07**
		OR	
Q.5	**(a)**	Explain briefly on different shearing operations applied on sheet metal.	**07**
	(b)	How electromagnetic forming process is useful in sheet metal working?	**07**

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