Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI(NEW) – EXAMINATION – SUMMER 2019

Subject Code: 2162103 **Date: 10/05/2019**

Subject Name: Powder Metallurgy

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.**

			MARKS
Q.1	**(a)**	What are the advantages of manufacturing gears by powder metallurgy route compare to casting method?	**03**
	(b)	Explain Green spring effect.	**04**
	(c)	Write the Advantages and limitations of powder metallurgy	**07**
Q.2	**(a)**	What are the advantages of particle size analysis by sieving method?	**03**
	(b)	Describe the role of lubrication during compacting.	**04**
	(c)	Draw the flow diagram for polycrystalline ferrite preparation. Write applications of ferrite material	**07**
		OR	
	(c)	Explain water atomization process with schematic diagram.What will be the effect on partical size and shape of powder if cooling is carried out by inert gas.	**07**
Q.3	**(a)**	Define: apparent density, flow rate, and friction index.	**03**
	(b)	What are the basic requirement should be fulfill by powder mixing plant?	**04**
	(c)	Write short note on Isostatic pressing	**07**
		OR	
Q.3	**(a)**	Differentiate the Blending and Mixing.	**03**
	(b)	Explain high energy rate forming method.	**04**
	(c)	Explain die compaction technique in brief with mandatory features	**07**
Q.4	**(a)**	Draw schematic diagram of powder extrusion pressing.	**03**
	(b)	Write properties of sintered friction materials	**04**
	(c)	What do you understand by Dispersion strengthened materials? List various manufacturing methods for it. Describe application and limitation of dispersion strengthened materials	**07**
		OR	
Q.4	**(a)**	Explain in brief Powder forging	**03**
	(b)	Describe the advantages and limitation of Hot pressing.	**04**
	(c)	Write short note on electrical contact materials.	**07**
Q.5	**(a)**	The main factor is not the particle size but particle size distribution for altering the apparent density-Justify the statement.	**03**
	(b)	Describe the stages of sintering.	**04**
	(c)	What is powder rolling? Explain in detail.	**07**
		OR	
Q.5	**(a)**	Tap density measurement reduce the cost of the powder? How?	**03**
	(b)	Write shortnote on cermets.	**04**
	(c)	Write short note on liquid phase sintering	**07**

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