Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI • EXAMINATION – SUMMER • 2014

Subject Code: 162103 **Date: 23-05-2014**

Subject Name: Powder Metallurgy

Time: 10:30 am - 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)**	Write the advantages, limitations and applications of powder metallurgy. Compare it with conventional production route.	**07**
	(b)	What do you mean by sintering atmosphere? Describe different sintering atmospheres.	**07**
Q.2	**(a)**	Discuss the effect of particle size, shape and size distribution on the properties of compact.	**07**
	(b)	What do you mean by compaction? Discuss about double die compaction.	**07**
		OR	
	(b)	Describe the die compaction process. Discuss the factors affecting die design.	**07**
Q.3	**(a)**	Describe the electrodeposition process for powder production. Discuss factors affecting process.	**07**
	(b)	List different atomization processes and explain any one for metal powder production.	**07**
		OR	
Q.3	**(a)**	Discuss briefly production of iron powders by reduction process.	**07**
	(b)	Write a note on alloy powder production methods.	**07**
Q.4	**(a)**	Describe the role of lubricants in compaction processes with the help of suitable example.	**07**
	(b)	Discuss about powder forging method. Give the advantages and limitations.	**07**
		OR	
Q.4	**(a)**	Define Mechanical alloying. Enlist important parameters of a mill. Explain different steps of mechanical alloying.	**07**
	(b)	Define sintering. Discuss the liquid-phase sintering process.	**07**
Q.5	**(a)**	Explain the isostatic pressing technique.	**07**
	(b)	Explain the method of production of electrical contact materials by powder metallurgy. Mention their applications.	**07**
		OR	
Q.5	**(a)**	Write a note on different types of compaction presses.	**07**
	(b)	What do you mean by metallic filters? How these are produced by powder metallurgy. Mention their applications.	**07**

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