U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

August 2024 Supplementary Examinations

Programme: B.E. **Semester: VI**
Branch: Institutional Elective **Duration: 3 hrs.**
Course Code: 19CH6OECOM **Max Marks: 100**
Course: Composite Materials

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

UNIT - I

1	a)	Distinguish intrinsic properties and properties that depend on the microstructure of ceramics.	**04**
	b)	Classify the ceramic fabrication methods based on their starting materials.	**06**
	c)	Explain the sol-gel method of ceramic fabrication with the help of relevant reactions and process flow charts.	**10**

UNIT - II

2	a)	Enlist and elaborate on the important parameters in the sintering of ceramics	**10**
	b)	List the different methods for the formation of ceramic composite materials. Elaborate on the Chemical Vapor Impregnation (CVI) method for fabrication of ceramic composites.	**10**

OR

3	a)	Explain in detail about the driving forces for sintering with the aid of relevant expressions.	**10**
	b)	Elaborate on reaction bonding process for the formation of ceramic composite materials. What are the specific advantages and disadvantages of this process?	**10**

UNIT - III

4	a)	Elaborate on the desirable powder characteristics for advanced ceramics. Classify the methods for the synthesis of ceramic powders.	**10**
	b)	Enlist the different ways of producing powders by the evaporation of liquid solutions. Elaborate on any one of the processes with the help of a neat schematic diagram.	**10**

UNIT - IV

5	a)	What is reinforcement? What are the different forms of reinforcements used in composites? What are the salient features of fibers as reinforcements?	**10**
	b)	Illustrate the process of liquid silicon infiltration technique for the synthesis of ceramic reinforced matrix.	**10**

OR

6	a)	Enlist the different types of metal matrix composites and the industrially important metallic matrices.	**08**
	b)	Illustrate the preparation of powdered metal matrix with a neat schematic diagram.	**12**

UNIT – V

7	a)	Illustrate the stress-strain behavior of polymer composites.	**05**
	b)	With the help of a schematic diagram, demonstrate the process of pultrusion. What are the advantages of this process?	**10**
	c)	Enlist any five applications of polymer composites.	**05**

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