U.S.N.										

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

Autonomous Institute Affiliated to VTU

October 2024 Supplementary Examinations

Programme: B.E. **Semester: VI**
Branch: Institutional Elective **Duration: 3 hrs.**
Course Code: 22CH6OECMS **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.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

			CO	PO	Marks
		UNIT – I			
1	a)	Explain the classification of ceramics based on their chemical compositions and industrial application.	*CO* 1	*PO1*	**08**
	b)	With a neat diagram explain the steps involved in processing of solid powders using melt casting process.	*CO* 2	*PO2*	**06**
	c)	Elucidate on pyrolysis reaction process to prepare silicon nitride material.	*CO* 2	*PO2*	**06**
		UNIT – II			
2	a)	Explain the different reactor confiragtions used in chemical vapour deposition process with a neat diagram.	*CO* 2	*PO2*	**12**
	b)	Differentiate between hot pressing and iso-static pressing methods.	*CO* 3	*PO3*	**08**
		OR			
3	a)	Enlist the industrial applications of boron and glass fibers.	*CO* 5	*PO12*	**06**
	b)	Elucidate the importance of different driving forces which influences the sintering process for ceramics.	*CO* 3	*PO3*	**06**
	c)	With a neat diagram explain the process involved for production of carbon fibers.	*CO* 2	*PO2*	**08**
		UNIT - III			
4	a)	Elucidate on spray drying process for preparation of mixed ceramic materials with a neat diagram.	*CO* 4	*PO7*	**10**
	b)	What are self-healing composites. Explain their mechanism with a neat diagram.	*CO* 4	*PO7*	**10**
		UNIT – IV			
5	a)	Explain the working mechanism of two role mill with a neat diagram.	*CO* 4	*PO7*	**10**
	b)	With a neat diagram explain the Spray-Forming process for preparation of particulate metal matrix composites.	*CO* 4	*PO7*	**10**

			OR			
	6	a)	Enlist the industrial applications of metal matrix and ceramic matrix composites.	*CO* 5	*PO12*	**10**
		b)	Explain the slurry infiltration process for preparation of ceramic reinforced matrix materials.	*CO* 4	*PO7*	**10**
			UNIT – V			
	7	a)	Summarize on the applications of different polymer composites in aerospace and marine industry	*CO* 5	*PO12*	**10**
		b)	Derive an expression for estimating the transverse tensile modulus for fiber reinforced composites.	*CO* 1	*PO1*	**10**

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