M.E. Second Semester (Mechanical Engineering (Adv. Manu.& Mech. Sys. Desig.)) (New-CGS)

13469 : Advanced Material Technology : 2 MMD 1

P. Pages : 2 | AU - 3387

Time : Three Hours | Max. Marks : 80

Notes :
1. All question carry equal marks.
2. Answer **any three** question from Section A and **any three** question from Section B.
3. Due credit will be given to neatness and adequate dimensions.
4. Illustrate your answer necessary with the help of neat sketches.
5. Discuss the reaction, mechanism wherever necessary.
6. Use of pen Blue/Black ink/refill only for writing the answer book.

SECTION – A

1.	a)	What is Tool steel? Discuss cold work tool steel.	7
	b)	Explain in brief i) Bearing Alloy ii) Magnesium Alloy iii) Copper Alloy	6
2.	a)	Discuss the different stages of powder metallurgy.	7
	b)	Explain in brief Recovery, Recrystallization, Grain growth.	6
3.	a)	Draw and explain the creep curve.	6
	b)	What is "slip casting". Explain in detail.	7
4.	a)	What are different Alloying Techniques. Explain any one.	7
	b)	Explain the Role & significance of dislocation.	6
5.	a)	What are the different strengthening mechanism of material. Explain strain hardening.	7
	b)	What are different methods of powder production in powder metallurgy. Explain Automization .	7

SECTION – B

6.	a)	What are different types of plastics? Why plastic is becomes substitute for metal in todays industry.	6
	b)	Why in the modern trends the ceramic is used as biomaterials.	7
7.	a)	What is composite? What are the bases of classifying composite. Explain PMC (Polymer Matrix Composite)	7

b) Explain 6

i) Shape memory Alloy

ii) Silon

iii) CBN

8. a) What are different methods processing of ceramic explain "isostatic pressing method". 7

b) Explain in brief: 6

i) Plasticizer

ii) Crosslinking

iii) Branching

9. a) What is 'Machinability' How the thermal treatment affect on machinability of metal. 7

b) Write note on:

i) Dispersion strengthened composite

ii) Particle strengthened composite

10. a) What is metallic glass? Discuss its uniqueness & potential applications. 7

b) Explain in brief: 7

i) Flint

ii) Feldspar

iii) Elastomer

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