M.E. Second Semester (Mechanical Engineering (CAD/CAM)) (F.T.) (CGS)

13496 : Industrial Product Design : 2 MCC 4

P. Pages : 1 | AW - 3738

Time : Three Hours | Max. Marks : 80

Notes : 1. Answer **Three** question from Section A and **Three** question from Section B.
2. Due credit will be given to neatness and adequate dimensions.
3. Assume suitable data wherever necessary.
4. Illustrate your answer necessary with the help of neat sketches.

SECTION – A

1.	a)	What is value of a product? Explain relationship between value engineering and product design.	**7**
	b)	Explain the concept of balance and proportion in product design.	**7**
2.	a)	Discuss various metals with their characteristics and uses.	**7**
	b)	Define the terms ferrous, nonferrous, hardwood, soft wood, thermoset, thermoplastic, whiteware, and glass.	**6**
3.	a)	Explain various hot methods of material joining.	**7**
	b)	Describe the process of injection assembly and find some examples of injection molded products.	**6**
4.	a)	What is anatomy? How anatomy factors are considered to product design? Illustrate your answer with an example.	**7**
	b)	What are various styles of tool handles? Describe their applications.	**6**
5.	a)	What is design for serviceability? Enlist guidelines of design for serviceability.	**7**
	b)	What is design for safety? Enlist various types of product hazards.	**6**

SECTION – B

6.	a)	What is rapid prototyping? Explain its role in product design.	**7**
	b)	List the differences between the SLS, SLA and LOM processes.	**7**
7.	a)	Define producibility and describe its importance in design for manufacturing.	**7**
	b)	Discuss the significance of part symmetry as an aid to product assembly.	**6**
8.	a)	Describe the functional, material, and visual requirements as they pertain to graphic design.	**7**
	b)	Explain graphic reproduction techniques.	**6**
9.	a)	Describe four basic categories of intellectual property protection.	**7**
	b)	What are granting and registration authorities for patents, trademarks and copyright?	**6**
10.	a)	Define the terms product liability, negligence, warranty, and strict liability.	**7**
	b)	What is design for usability? What makes one 'Calculator' more user-friendly than the other?	**6**

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