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Sixth Semester B.E./B.Tech. Degree Examination, June/July 2025

Design Processes and Perspectives

Time: 3 hrs.

Max. Marks: 100

*Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.*

Module – 1			M	L	C
Q.1	a.	Explain how the simplified iteration model helps in refining a design. Why is iteration a fundamental aspect of design methodology?	4	L2	CO1
	b.	Compare the design method with the scientific method with a neat diagram to develop a solution for lack of access to clean drinking water in rural communities.	8	L3	CO1
	c.	Explain the problem solving methodology in engineering design process.	8	L2	CO1
OR					
Q.2	a.	Explain the different types of engineering design with example.	4	L2	CO1
	b.	What are the key challenges in accurately identifying design needs? Identify the steps core need behind designing a problem of inaccurate heart rate monitoring in wearable devices.	8	L3	CO1
	c.	What are the societal, environmental and ethical consideration for a company planning to launch a budget – friendly smart phone for developing nations.	8	L2	CO1
Module – 2					
Q.3	a.	Define data, information and knowledge with examples.	4	L2	CO2
	b.	Design a product architecture of a smart home system and outline key steps involved.	8	L3	CO2
	c.	A company is developing a new electric vehicle. The design team needs to gather relevant information for material selection and battery efficiency: i) Identify and explain three reliable sources to be used. ii) Describe how to verify the credibility of the collected information.	8	L2	CO2
OR					
Q.4	a.	List and define the factors that help transform, data into meaningful information.	4	L2	CO2
	b.	Compare and contrast modular and integral product architecture. Discuss their advantages and disadvantages with real world examples.	8	L3	CO2
	c.	Explain the different types of sources available for gathering design information and their significance.	8	L2	CO2
1 of 2					

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Module – 3					
Q.5	a.	What is brainstorming? Explain its role in idea generation.	4	L2	CO3
	b.	Explain the behavioral aspects of decision making in detail.	8	L2	CO3
	c.	Apply quick idea generation tool like six key questions, five whys to generate innovative ideas for developing eco-friendly packaging material for product development company.	8	L3	CO3
OR					
Q.6	a.	What is SCAMPER method explain?	4	L2	CO3
	b.	Apply decision making process to select the best material for packaging in a sustainable product.	8	L3	CO3
	c.	Explain in detail the process of design selection based on judgment and experience.	8	L2	CO3
Module – 4					
Q.7	a.	Describe the principles of reducing users memory load in UI design.	4	L2	CO4
	b.	What is design pattern? Explain its structure with an example.	8	L2	CO4
	c.	Analyze how user interface design steps is implemented for a social media web App.	8	L3	CO4
OR					
Q.8	a.	List and explain any 4 kinds of design patterns.	4	L2	CO4
	b.	Explain the interface design steps and apply the same to the user scenario for the safe home system.	8	L3	CO4
	c.	Explain user interface web App design patterns.	8	L2	CO4
Module – 5					
Q.9	a.	Explain how ecosystems can be modeled in engineering terms.	4	L2	CO5
	b.	Discuss the reasons for reducing dependence on fossit fuels.	8	L2	CO5
	c.	Evaluate the challenges faced by global businesses in adhering to environmental regulations.	8	L3	CO5
OR					
Q.10	a.	What does CSR stand for, explain CSR measures used to evaluate corporate sustainability performance.	4	L2	CO5
	b.	What are option available at a product EO life. Evaluate the use of combustion as a waste management strategy. What are its benefits and drawbacks?	8	L3	CO5
	c.	Explain how fossil fuel dependencies has evolved since the 1970s.	8	L2	CO5
