


Name:			
Enrolment No:			
UNIVERSITY OF PETROLEUM AND ENERGY STUDIES End Semester Examination, December 2022			
Course : B Tech. Mechanical Engineering		Semester: VII	
Program : Product Design and Development		Time : 03 hrs.	
Course Code: MEPD 4020		Max. Marks: 100	
Instructions: Draw figures and diagrams, wherever required.:			
SECTION A (5Qx4M=20Marks)			
S. No.		Marks	CO
Q 1	Explain Value Engineering (VE) and Value Analysis (VA) used in engineering design.	4	CO1
Q2	Explain different steps and milestones in product design?	4	CO2
Q3	Discuss innovative thinking and conceptual design in your own words.	4	CO1
Q4	Discuss morphology of design for a product. How it will help?	4	CO2
Q5	Explain robust design aspect in product design?	4	CO4
SECTION B (4Qx10M= 40 Marks)			
Q 1	Explain typologies of different Design Process Model (DPM) and define reference modelling in PD.	10	CO1
Q2	On the basis of various stage of product development differentiate between CAE, CAD, CAM tools used in Industrial design.	10	CO2
Q3	How would you outline basic components of Product Life Cycle (PLC) in sustainable product development?	10	CO3
Q4	Explain objective, properties and benefits of the design for X system (or “Design for Excellence”). OR What are the choice of design for X Tools and how these are uses in the design process?	10	CO4
SECTION-C (2Qx20M=40 Marks)			
Q 1	Define importance of product configuration in product design. How Product Variant Management (PVM) affect product lifecycle?	20	CO3
Q2	Explain how cost effectiveness is an important parameter in product development stage. Explain factors considered in costs estimation at various stages of product development. OR How modeling and prototyping helps in product development? Explain different types of prototyping.	20	CO4

