

<b>Name:</b>	
<b>Enrolment No:</b>	

**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**  
**End Semester Examination, December 2021**

<b>Course: Product Design &amp; Development (MECH 4020)</b>	<b>Semester: VII</b>
<b>Programme: B.Tech Mechanical</b>	
<b>Time: 3 Hours</b>	<b>Max. Marks: 100</b>
<b>Note: All the questions are compulsory.</b>	

**SECTION A**

S. No.		Marks	CO
Q-1	Write briefly the steps to obtain target and final specifications of a new product.	4	CO1
Q-2	Explain the problems that can be explored in concept generation process.	4	CO1
Q-3	Interpret the product performance in concept testing	4	CO1
Q-4	Interpret the use of integrating CAE/CAD/CAM.	4	CO2
Q-5	Interpret the steps involved in prototype design	4	CO2

**SECTION B**

Q-6	Distinguish between sequential product development and simultaneous product development. Relate the advantages and disadvantages of each form.	10	CO2
Q-7	Identify and briefly characterize the five stages of the product life cycle. <b>OR</b> Why do so many new products fail? What can be done to increase the likelihood that the new product will be successful?	10	CO3
Q-8	Explain the various stages of Root development of Industrial Design along with its process flow chart.	10	CO3
Q-9	List 10 reasons why reducing the number of parts in a product might reduce production costs. Also list some reasons why costs might increase.	10	CO4

**SECTION C**

Q 10	No matter what brand of computer you're using or what you're doing on it, you're almost certain to be using some type of Microsoft product or service. Is Microsoft known as an innovator? Explain. What is at the heart of Microsoft's innovation strategy? List and briefly discuss three of Microsoft's new innovations as described in the text.	20	CO3
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	<b>OR</b>		
	<p>Today there are several 3D printing technologies able to create physical parts directly from 3D CAD files (e.g., stereolithography and selective laser sintering). How might a team use such rapid prototyping technologies during the concept development phase of the product development process? Might these technologies facilitate identifying customer needs, establishing specifications, generating product concepts, selecting product concepts, and/or testing product concepts?</p>		
11	<p>Explain all the aspects of DFMA and apply them on development of a product (Consider any product used in day to day life)</p>	<b>20</b>	<b>CO4</b>