Hall Ticket Number:	
	Code

e No.: 18531 (A) N VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS), HYDERABAD

Accredited by NAAC with A++ Grade

B.E. (Mech. Engg.) VIII-Semester Main & Backlog Examinations, May-2023 Product Design and Development (PE-V)

Time: 3 hours

Max. Marks: 60

Note: Answer all questions from Part-A and any FIVE from Part-B

Part-A $(10 \times 2 = 20 Marks)$

Q. No.	Stem of the question	M	L	CO	PO
1.	What is meant by product innovation? Give any two examples.	2	1	1	1
2.	What are the process design functions?	2	2	1	1
3.	List the sources of idea generation.	2	1	2	1
4.	What are the human factors in the product design?	2	1	2	
5.	What are the benefits of international patent classification? Give an example of IPC.	5291800	1	3	7
6.	What is a patent? List different types of patents.	2	1	3	7
7.	What are the techniques adopted in enhancing aesthetic appeal of a product design?	2	2	4	1
8.	List the roles of a product designer.	2	1	4	1
9.	Define prime cost and total cost of a product.	2	1	4	1
10.	What are the threads of PLM?	2	1	5	1
	Part-B $(5 \times 8 = 40 Marks)$	2	1	5	1
1. a)	Discuss the objectives and features of a new product design.	4	4		_
-	What is brain storming? Explain different phases of brain storming.	4	4	1	1
	Discuss various principles of Ergonomics.	4	4	1	1
	Explain PUGH selection chart used for screening Ideas.	4	4	2	1
- 1	Explain different stages of a new product design and development.	4	4	2	1
	What is trade mark? Explain different types of trade marks.	4	4	3	7
		4 4	1	3	1
		4 2)	4	1
I	Discuss the steps for introducing new products after evaluation-Product Launch cycle.	4 2		4	1

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15. a)	Discuss the merits, demerits, and applications of Group Technology.	4	2	5	1
b)	Explain various principles of Concurrent Engineering.	4	4	5	1
16. a)	Explain the steps to be followed in Delphi technique for the product innovation.	4	4	1	1
b)	Discuss Principles and laws of appearance in product design.	4	4	2	1
17.	Answer any <i>two</i> of the following:				
a)	What is the significance of research in new product design?	4	2	3	7
b)	Discuss the function of manufacture, testing and quality in the product design and development.	4	2	4	1
c)	Explain the Product life cycle and mention the characteristics of each stage.	4	4	5	1

M: Marks; L: Bloom's Taxonomy Level; CO; Course Outcome; PO: Programme Outcome

i)	Blooms Taxonomy Level – 1	20%
ii)	Blooms Taxonomy Level – 2	30%
iii)	Blooms Taxonomy Level – 3 & 4	50%

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