

BITS Pilani, K K Birla Goa Campus

First Semester 2022-2023

Mid-semester Exam (Regular)

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| Course Title and Code | : Product Design (DE G531) |
| Nature of Exam | : Closed Book |
| Max Marks | : 30 |
| Duration | : 90 Minutes |
| Date & Time of Exam | : 01-11-2022 (11:30 am-1:00 pm) |

Instructions:

- Please follow all the guidelines shared on Moodle Quanta.
 - Answer each question on a new page.
 - Assumptions made if any, should be stated clearly at the beginning of your answer.
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Q1. List at least six performance metrics (with units) corresponding to the need that a ballpoint pen writes smoothly. [3]

Q2. Discuss the criteria for choosing an organizational structure for a product development company. [3]

Q3. Explain with an example: function and constraints as applicable to a product. [3]

Q4. What is vendor partnering strategy in concurrent engineering? Discuss the advantages and disadvantages of the same. [2+2]

Q5. Explain with an example, importance of lead customers in the product design. [3]

Q6. Draw a FAST diagram for a washing machine with a design objective of reducing noise and vibrations. Mention drawbacks of the FAST method. [4+1]

Q7. Discuss strategies to guide the new product development using the S curve. [3]

Q8. You are assigned a task to design a bank ATM machine (money vending machine).

- a) Mention the type of product. [1]
- b) Which product development process you will follow? Justify. [1]
- c) Prepare a mission statement. [2]
- d) Draw a simple function structure black-box for the product with appropriate inputs and outputs. [2]