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| **DIT UNIVERSITY DEHRADUN**   |  |  | | --- | --- | | **B.TECH (ME)** | **MID TERM EXAMINATION, ODD SEM 2022-23 (SEM V)** | | | | | | | | | | | | | |
| **Roll No.** |  |  |  |  |  |  |  |  |  |  |  |  |
| **Subject Name: Product Design & Development** | | | | | | | | | | | | |

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| **Time: 2 Hours** | **Total Marks: 50** |
| **Note: All questions are compulsory. No student is allowed to leave the examination hall before the completion of the exam.**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Q.1)** | **Attempt all Parts :** | | **BTL** | **CO** | |  | **(a)** | Define the product and product development? | **1** | **1** | |  | **(b)** | Describe clearly the characteristics of a successful product development? | **1** | **1** | |  | **(c)** | List out briefly the major challenges of product development? | **1** | **1** | |  | **(d)** | Explain design morphology. | **2** | **2** | |  |  | **[4 x 2.5= 10]** |  |  | |  | | |  |  | | **Q.2)** | **Attempt all Parts :** | | **BTL** | **CO** | |  | (a) | Define the product planning process and list out its various steps? | **1** | **1** | |  | (b) | State the difference between the product vision statement and the product mission statement? | **2** | **2** | |  | (c) | Define the term concept generation and define its relevance in the product development process. | **1** | **2** | |  | (d) | Describe the term product specifications? | **2** | **2** | |  |  | **[4 x 2.5= 10]** |  |  | |  | | |  |  | | **Q.3)** | **Attempt any Two Parts :** | | **BTL** | **CO** | |  | (a) | What is product life-cycle? Explain in detail the various phases of product life-cycle with the help of a sketch. | **2** | **1** | |  | (b) | Describe in detail the generic product development process? | **2** | **1** | |  | (c) | Describe the various phases of product development-planning for products? | **1** | **1** | |  |  | **[2 x 5= 10]** |  |  | |  | | |  |  | | **Q.4)** | **Attempt any Two Parts :** | | **BTL** | **CO** | |  | **(a)** | Explain in detail the various steps involved in the concept generation process using an example. | **1** | **2** | |  | **(b)** | Describe the technique used to co-ordinate the technology development along with the product planning? | **2** | **3** | |  | **(c)** | Describe the three methods commonly used for gathering raw data from customers? | **1** | **2** | |  |  | **[2 x 5= 10]** |  |  | |  | | |  |  | | **Q.5)** | **Attempt any Two Parts :** | | **BTL** | **CO** | |  | **(a)** | List a set of metrics corresponding to the need that a pen write smoothly? | **2** | **3** | |  | **(b)** | With the help of a block diagram describe the concept development process showing the stages of the target specifications and final specifications? | **2** | **2** | |  | **(c)** | Translate the following five customer statements about a student book bag into proper needs statements:  a. “See how the leather on the bottom of the bag is all scratched; it’s ugly.”  b. “When I’m standing in line at the cashier trying to find my check book while balancing my bag on my knee, I feel like a stork.”  c. “This bag is my life; if I lose it I’m in big trouble.”  d. “There’s nothing worse than a banana that’s been squished by the edge of a textbook.”  e. “I never use both straps on my bagpack; I just sling it over one shoulder.” | **3** | **3** | |  |  | **[2 x 5= 10]** |  |  | | **-----END OF PAPER ----** | | |  |  | | |