

Total No. of Questions : 8]

SEAT No. :

PD4705

[6404]-211

[Total No. of Pages : 2

B.E. (Mechanical Engineering)

PRODUCT DESIGN AND DEVELOPMENT

(2019 Pattern) (Semester - VII) (402045A) (Elective - IV)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *Use of electronic pocket calculator is allowed.*
- 5) *Assume suitable data, if necessary.*

Q1) a) Explain the procedure for product tear down in detail. **[7]**

b) Explain Pugh's chart. **[6]**

c) Explain brain storming with suitable example. **[4]**

OR

Q2) a) Explain subtract and operate procedure. **[7]**

b) Explain SWOT analysis for a selection of profitable product. **[6]**

c) Explain benchmarking with suitable example. **[4]**

Q3) a) What is design for assembly? Explain the principles of DFA. **[7]**

b) Explain the term 'Product architecture'. **[6]**

c) Define Limit, Tolerance and Fit. **[4]**

OR

P.T.O.

- Q4)** a) What is design for manufacturing? Explain the principles of DFM. [7]
b) What is Geometric Tolerances? List down various geometric tolerances with symbols. [6]
c) What are the various elements of production drawing? [4]

- Q5)** a) Explain Simulation driven design. List down various simulation driven design types. [8]
b) What is Rapid prototyping? Explain 3D printing in detail with suitable sketch. [6]
c) What is production capacity planning? [4]

OR

- Q6)** a) What is PPAP? Explain elements of PPAP. [8]
b) Explain Make Vs Buy Decision. [6]
c) Differentiate product testing and product validation. [4]

- Q7)** a) Discuss design for robustness in detail. [8]
b) Describe in detail 'Process Flow Chart'. [6]
c) Differentiate value analysis and value engineering. [4]

OR

- Q8)** a) Define APQP and Explain APQP phases. [8]
b) Write a short note on product data management. [6]
c) Differentiate DFMEA and PFMEA. [4]

