SEAT No. :

P-6671

[6181]-239

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 SWOT analysis in selecting profitable product concept. **[7]**

     b) Describe in detail reverse engineering. **[6]**

     c) Explain Economic analysis in product analysis. **[4]**

OR

Q2) a) Explain concept analysis considering functional, marketing, operational etc. aspect. **[7]**

     b) Which are the different idea generation approaches use in product design and development. **[6]**

     c) What is product policy of an organization? List down various product policies. **[4]**

Q3) a) What is Ergonomics in design? Explain types of Ergonomics with example. **[7]**

     b) Explain BOM with example. **[6]**

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

OR

Q4) a) What is product architecture? Explain types of product architecture. **[7]**

     b) What is the need for engineering drawing? Classify engineering drawing. **[6]**

     c) What is part print analysis? How it is important in product development. **[4]**

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Q5) a) What is production capacity planning? Explain the steps followed in planning. **[8]**

b) What is Rapid prototyping? Define and enlist various methods of prototyping. **[6]**

c) Define letter of intent, purchase order and product costing in vendor development. **[4]**

OR

Q6) a) Explain stereolithography in detail with suitable sketch. **[8]**

b) Explain FEA with example. **[6]**

c) Why homologation certificate is important in design and development? Explain with example. **[4]**

Q7) a) What is APQP, what role it plays in robust design and development? **[8]**

b) Compare Value analysis and Value engineering. **[6]**

c) Discuss the elements of PLM in detail. **[4]**

OR

Q8) a) Explain application of Teamcenter/Nx Manager in Product design and development. **[8]**

b) Compare PFMEA AND DFMEA. **[6]**

c) What are guidelines for design for robustness? Discuss. **[4]**

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