

Seat No.	
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B.E. (Mechanical) (Part I) (Semester - VII) (Pre-Revised)**Examination, November - 2016****INDUSTRIAL PRODUCT DESIGN (Elective - II)****Sub. Code: 47988****Day and Date : Friday, 25 - 11 - 2016****Total Marks : 100****Time :2.30 p.m. to 5.30 p.m.**

- Instructions :**
- 1) Answer any three questions from section I and any three questions from section. II
 - 2) Figures to the right indicate full marks.
 - 3) Draw neat sketches wherever necessary.
 - 4) Answer to the two sections must be written in the same answer book.

SECTION - I

- Q1)** a) Explain the procedure for identifying customer needs. [8]
b) Explain the challenges faced in product design and development. [8]
- Q2)** a) Explain and compare the different types of prototypes in product design. [10]
b) Explain the concept of value engineering. [6]
- Q3)** a) Explain the procedure for setting target specifications in product design. [8]
b) Explain the procedure for estimating the manufacturing cost in product design. [8]
- Q4)** Write short notes (Any Three): [18]
a) Concept generation process.
b) Design for environment.
c) Design for manufacturing (DFM).
d) Concurrent Engineering.
e) Market Research.

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SECTION - II

- Q5) a)** Explain the ergonomics principles used in industrial safety and health control. [6]
- b) Explain the following with respect to controls. [10]
- i) Shape coding of controls
 - ii) Design of hand wheels
- Q6) a)** Explain the key factors to be considered in the design of a work station. [8]
- b) Explain the benefits and features of ISO 14000 Environmental Management System. [8]
- Q7) a)** Explain the different personal protective equipment to be used as safety devices. [8]
- b) Explain the general causes of occupational health hazards in modern industries. [8]
- Q8) Write short notes on (Any Three):** [18]
- a) Safety in Foundry.
 - b) Aesthetics in product design.
 - c) Necessity of anthropometric data in product design.
 - d) Visual display unit.
 - e) Product data management.

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