

(Following Paper ID and Roll No. to be filled in your Answer Books)

Paper ID : 140653

Roll No.

B.TECH.

Theory Examination (Semester-VI) 2015-16

PRODUCT DEVELOPMENT & DESIGN

Time : 3 Hours

Max. Marks : 100

Note : (1) All questions carry equal marks.

(2) Be precise in your answers.

Section-A

UPTU NOTES

1. Attempt all questions. (10×2=20)

- (a) What is meant by product-definition?
- (b) Draw the Production-Consumption-Cycle.
- (c) What do you understand by evolution design?
- (d) Explain the necessity of need identification.

- (e) Differentiate between 'technology based development' and 'need based development'.
- (f) Explain role of ergonomics in product design.
- (g) What are the steps in brain storming?
- (h) What are the four uses of Prototyping?
- (i) What are the four elements of economic analysis in product development?
- (j) Differentiate between product & services.

2. Attempt any five parts of the following (10×5=50)

- (a) What is Morphology of Design? Draw the diagram showing its phases of Primary design and phases related to Production-Consumption-Cycle.
- (b) Explain the Divergence, Transformation and Convergence phases of product design.
- (c) Make a check list to facilitate the need analysis.
- (d) Explain Morphological techniques for decision making with a suitable example.

- (e) What are the advantages of work study & explain the procedure of work measurement?
- (f) What do you understand by man machine interface and explain the principles for display design.
- (g) What are the different methods of technological forecasting? Discuss any two in detail.
- (h) Discuss the evolution of safety razor stating its various stages of development.

Section-C

Note: Attempt any two parts of the following. (15×2=30)

- 3. A business enterprise has a project of making and selling a new product. It associates a fixed cost of Rs. 7000 and a variable cost of producing unit as Rs. 40. The product can be sold at the rate of Rs. 60 per piece. The level of sales is uncertain, the probability selling 100 unit is 0.2 , probability of selling 350 unit is 0.3 and probability of selling 700 unit is 0.5. Should the enterprise go for production or reject it?
- 4. Write short notes on following:
 - (i) Technological Forecasting

- (ii) compatibility of display and control
 - (iii) decision making under multiple criteria
5. What is break-even analysis? What is included in fixed cost and in variable cost?

