

Register Number

B.E. DEGREE EXAMINATIONS: APRIL/MAY 2012

Eighth Semester

MECHATRONICS ENGINEERING

U07MHE14: Product Design And Development

Time: Three Hours

Maximum Marks: 100

Answer All Questions:-

PART A (10 x 1 = 10 Marks)

1. Designing for production includes the work of
a) Product design function b) Process design function c) Both a) and b) d) None
2. Which of the following makes your mind observant of new ideas
a) Knowledge b) Curiosity and Imagination c) Critical thinking d) Courage
3. -----must be built into the product, not applied to the product.
a) Appearance b) Strength c) Weight d) Color
4. Reflecting ability for light striking a surface is better in
a) Grey surface b) White Surface c) Black surface d) Red surface
5. The cost that are estimated sound assumptions as to material, labor and overhead expense is
a) Standard cost b) Actual cost c) Overhead cost d) Total cost
6. The information about the Savings/ expenditures according to the plan is
a) Cost reduction b) Profit c) Loss d) Cost control
7. The life from the date of issuance for a *Trade mark* is
a) 17 Years b) 14 Years c) 20 years d) 28 Years
8. The information given to the attorney and the patent office in order to obtain a patent is
a) Patent disclosure b) Design patent c) Trade secret d) Copy right
9. The plot of Magnitude of failure rate and time is called as
a) Failure curve b) Bath tub curve c) Mortality curve d) Reliability curve
10. A chart that shows relationship between cost, sales, profit or loss and volume is
a) Golden rectangle b) Break even chart c) Gantt Chart d) None

PART B (10 x 2 = 20 Marks)

11. What are two distinct functions in designing for production?

12. What are the principal requirements of creative thinking?
13. What is meant by functional design?
14. What are the factors considered to have pleasing appearance?
15. How do you estimate the product cost?
16. What are the two most common forms of cost procedures?
17. What are the classes of Exclusive rights?
18. State the significance of Trade Mark?
19. What are the types of inspection?
20. What is value analysis?

PART C (5 x 14 = 70 Marks)

21. a) (i) Discuss the process design function of any product. (7)
(ii) How are ideas influence the creation new product? (7)

(OR)

- b) Discuss the following factors of product design engineer influence in the introduction of new product.
- (i) Creative thinking (5)
 - (ii) Curiosity (5)
 - (iii) Imagination (4)

22. a) Discuss the role and steps involved in market research in launching a new product.

(OR)

- b) Discuss in detail the following aspects with respect to product development.
- (i) Functional aspect (7)
 - (ii) Ease of Maintenance (7)

23. a) What is Value Engineering? Discuss the steps involved in adding the value of the product. Illustrate with example.

(OR)

- b) Discuss the various cost involved in product right from inception of concept till reaching customer.

24. a) (i) Compare combination and aggregation (7)

(ii) Explain the terms Novelty and Utility (7)

(OR)

b) Describe in detail various steps involved in obtaining 'patent' of product.

25. a) (i) Discuss in detail the Quality control procedures in general. (7)

(ii) Enumerate Design for Reliability (7)

(OR)

b) What is the significance of Break – Even Chart? In what way it helps to feasibility study?
