



B.E/B.TECH DEGREE EXAMINATIONS: MAY 2017

(Regulation 2015)

Fourth Semester

U15GST008: FOUNDATION SKILLS IN INTEGRATED PRODUCT DEVELOPMENT

(Common to MCE & IT)

COURSE OUTCOMES

- CO1** Analyze various factors affecting the product development decision and their importance on new product development
- CO2** Comparison of various products and services, types and methods of product development, its planning and management.
- CO3** Analyze and apply the requirement based on critical parameters and develop system models.
- CO4** Apply and analyze the conceptualization, design prototyping ,testing certification and documentation processes related to product development
- CO5** Apply and analyze concepts of product maintenance and strategies for obsolescence management, replacement and disposal.
- CO6** Demonstrate understanding of product development in academic and real life situations, breakeven and tradeoff analysis in product development, IPR and security aspects related to product development.

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Matching type item with multiple choice code

CO1 [K₃]

List I		List II	
A. Problem statement		i. Evaluation	
B. Literature		ii. Project planning	
C. Decision matrices		iii. Design and Specifications	
D. Detailed drawings		iv. Internet	

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|----|-----|----|-----|-----|
| | A | B | C | D |
| a) | ii | iv | I | iii |
| b) | iii | iv | Ii | i |
| c) | ii | iv | Iii | i |
| d) | iii | i | Ii | Iv |

2. In PESTLE Analysis , “L”stands for CO1 [K₂]
- a) Light b) Legal
 c) Local d) Literature
3. A traceability matrix is a CO3 [K₃]
- 1) Document 2) Relationship Table
 3) Environmental rule 4) Manufacturing protocol
- a) 1,3 b) 1,4
 c) 1,2 d) 2,3
4. Reverse bath tub curve is used to analyze the performance of CO2 [K₁]
- a) Product life cycle b) Maintenance
 c) Production d) IPR
5. Assertion (A): In QFD, the target values are established in the first product planning stage. CO3 [K₂]
 Reason (R):In QFD, the critical process parameters are established in the process planning stage.
- a) Both A and R are Individually true and R is the correct explanation of A b) Both A and R are Individually true but R is not the correct explanation of A
 c) A is true but R is false d) A is false but R is true
6. Patents are granted by _____ CO6 [K₃]
- a) ISO Office b) State Government
 c) National or regional patent offices d) corportion
7. 1. Deposition takes place to create a product CO4 [K₂]
 2. Nozzle is heated to melt the material
 3. A plastic filament is unwound from coil
 4. Formation of STL file
- a) 2-3-4-1 b) 4-3-2-1
 c) 3-4-2-1 d) 4-1-3-2
8. _____ is the process of preserving a condition or situation. CO5 [K₁]
- a) Marketing b) Designing
 c) Patenting d) Maintenance
9. Assertion (A): An invention is considered new or novel if it is not known to the public through publication or prior use anywhere in the world. CO6 [K₄]
 Reason (R): The invention should not be a part of the existing global state of the art
- a) Both A and R are Individually true and R is the correct explanation of A b) Both A and R are Individually true but R is not the correct explanation of A
 c) A is true but R is false d) A is false but R is true

10. _____ involves a set of rules or a promise that limits access on a certain type of information CO6 [K₄]
- a) Egoism b) Ability
 c) Intellectuality d) Confidentiality

PART B (10 x 2 = 20 Marks)

(Answer not more than 40 words)

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|---|-----------------------|
| 11. Define the term Reverse Engineering. | CO1 [K ₁] |
| 12. What is scheduling? | CO2 [K ₂] |
| 13. Why optimization is required? | CO3 [K ₂] |
| 14. List the steps followed in QFD. | CO3 [K ₃] |
| 15. Give the advantages of CFD. | CO4 [K ₂] |
| 16. Differentiate between Guarantee and Warranty. | CO5 [K ₃] |
| 17. Give several rapid prototyping techniques used in industries. | CO4 [K ₂] |
| 18. What is a product development? | CO6 [K ₄] |
| 19. Maintenance management can improve the life and performance of a product. Justify | CO5 [K ₄] |
| 20. Define Confidentiality. | CO6 [K ₃] |

Answer any FIVE Questions:-

PART C (5 x 14 = 70 Marks)

(Answer not more than 300 words)

Q.No. 21 is Compulsory

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|--|------|-----|-------------------|
| 21. i) What is Rapid prototyping | (4) | CO4 | [K ₂] |
| ii) Explain any one rapid prototyping technique in detail with a neat sketch. | (10) | CO4 | [K ₂] |
| 22. i) Discuss the role of product life cycle in the development of a product. | (7) | CO2 | [K ₂] |
| ii) Describe the importance of S-curve in product life cycle analysis with a case study | (7) | CO2 | [K ₂] |
| 23. i) Discuss PESTLE analysis in detail | (7) | CO1 | [K ₂] |
| ii) Describe the several steps to be followed in New Product Development with a suitable case study. | (7) | CO1 | [K ₂] |

24. i) Explain the term traceability matrix and discuss how it is used to check the requirements are met for a given project. (7) CO3 [K₂]
ii) Discuss the various phases of Quality Function Deployment over the course of product development in detail (7) CO3 [K₂]
25. i) Explain the several design activities that are performed in conceptual engineering design and detailed engineering design in detail. (7) CO4 [K₂]
ii) Differentiate between product verification process and Product validation process. (7) CO4 [K₂]
26. i) What is sustenance Engineering? (4) CO5 [K₂]
ii) Discuss the several methods of maintenance followed in sustenance engineering (10) CO5 [K₂]
27. i) How do you explain the term 'a new product or a process'? (4) CO6 [K₂]
ii) What are Intellectual Property Rights (IPR)? Discuss the importance of IPR in product development (10) CO6 [K₂]
