

AR22

CODE: 22MCM1003

SET-1

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)

I M. Tech I Semester Regular Examinations, February, 2025

TOOL DESIGN (COMPUTER INTEGRATED MANUFACTURING)

Time: 3 Hours

Max Marks: 60

Answer any FIVE questions
All questions carry EQUAL marks

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|----|----|---|-----|
| 1. | a) | Differentiate between uncoated and coated cutting tools. | 6 M |
| | b) | Explain the significance of tool geometry in cutting tools. | 6 M |
| 2. | a) | Explain the process of designing circular form tools. | 6 M |
| | b) | Differentiate between peripheral, end, and face milling cutters. | 6 M |
| 3. | a) | Compare and contrast internal broaches and external broaches in terms of applications and geometry. | 6 M |
| | b) | Explain the manufacturing process of push-type broaches. | 6 M |
| 4. | a) | Discuss the impact of varying the helix angle on torque and thrust forces during drilling. | 6 M |
| | b) | Explain the process of designing and manufacturing a twist drill. | 6 M |
| 5. | a) | Differentiate between progressive dies and compound dies with examples. | 6 M |
| | b) | How is die clearance determined for drawing operations? | 6 M |
| 6. | a) | What are the essential design principles of jigs and fixtures, and why are they important in manufacturing? | 6 M |
| | b) | Define fool-proofing in the context of jigs and fixtures and provide examples of its implementation. | 6 M |
| 7. | a) | Discuss the common types of cutting tool failures with examples. | 6 M |
| | b) | Explain the concept of flank wear and crater wear in cutting tools. | 6 M |
| 8. | a) | Sketch and describe a twist drill geometry | 6 M |
| | b) | Sketch a Reamer and explain the functions of its different parts | 6 M |

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)****I M. Tech I Semester Regular & Supplementary Examinations, February, 2025****DATA WAREHOUSING AND DATA MINING
(COMPUTER SCIENCE AND ENGINEERING)****Time: 3 Hours****Max Marks: 60****Answer any FIVE questions
All questions carry EQUAL marks**

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| 1. | a) | Explain the need for data cleaning and preprocessing of data. | 6M |
| | b) | Write the differences between Data mining and data warehousing. | 6M |
| 2. | a) | Compare both top-down and bottom-up approach in detail. | 6M |
| | b) | Explain about Multidimensional Data Model in detail. | 6M |
| 3. | a) | Write a detailed note on OLAP Technology. | 6M |
| | b) | Write different types of association rules in detail. | 6M |
| 4. | a) | Explain how classification can be implemented using rules-based methods with an example. | 6M |
| | b) | Explain how classification can be implemented using a decision tree method with an example. | 6M |
| 5. | | Define clustering? Explain in detail about the hierarchical clustering in detail about its types, advantages etc. | 12M |
| 6. | a) | Explain list of areas where data mining is extensively used. | 6M |
| | b) | Write any two data mining tools available on the market today. | 6M |
| 7. | a) | Explain any two important themes on data mining do you feel. | 6M |
| | b) | Write a note on grid-based method in DM. | 6M |
| 8. | a) | What are the various Issues regarding Classification and Prediction in data mining? | 6M |
| | b) | Write various constraints to be considered while using the Constraint-Based Association Mining. | 6M |

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)****I M. Tech I Semester Supplementary Examinations, February, 2025****ANALYSIS OF POWR ELECTRONIC CONVERTERS
(POWER ELECTRONIC DRIVES)****Time: 3 Hours****Max Marks:60**

**Answer any FIVE questions
All questions carry EQUAL marks**

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|----|----|--|-----|
| 1. | a) | Explain the operation of 3-phase AC-voltage controller when connected to a Delta connected RL load | 6M |
| | b) | Explain about Synchronous tap changers and its applications. | 6M |
| 2. | a) | Draw and discuss the operation of 1- ϕ fully controlled RL load with neat diagram and expressions with discontinuous conduction | 6M |
| | b) | A single phase ac-dc controller feeds a R-L load. The value of resistance is $10\ \Omega$ and inductance is 6.5mH. The controller is fed from a single phase supply of 230V, 50Hz. Determine for a firing angle of 45° , the values of i) load current ii) load voltage | 6M |
| 3. | | Explain in detail the operation of a 3-phase semi converter feeding a RL Load with reference to voltage and current waveforms, assume current is continuous. | 12M |
| 4. | a) | Explain the operation of 3-phase boost PFC converter | 6M |
| | b) | Explain the operation of 3phase dual converters with voltage waveforms | 6M |
| 5. | a) | Explain in detail the operation of a 1-phase semi converter with single phase sinusoidal PWM control. | 6M |
| | b) | Compare between Continuous conduction and Discontinues conduction. | 6M |
| 6. | | Explain single phase bridge inverter control by
a) 60 Degree PWM b) Third Harmonic injection PWM? | 12M |
| 7. | a) | Explain the operation of Three Phase Inverters Sinusoidal PWM control. | 6M |
| | b) | Explain the operation of a single-phase AC voltage controller with PWM control. Draw the circuit configuration, voltage and current waveforms | 6M |
| 8. | | Explain the working of flying capacitor multilevel inverter with the help of a neat schematic and waveforms. | 12M |

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**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)**

I M. Tech I Semester Regular & Supplementary Examinations, February, 2025

**ADVANCED CONCRETE TECHNOLOGY
(STRUCTURAL ENGINEERING)**

Time: 3 Hours

Max Marks: 60

**Answer any FIVE questions
All questions carry EQUAL marks**

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| 1. | a) | Discuss about classification of aggregates used in concrete | 6M |
| | b) | What are the effects of admixtures on fresh and hardened concrete? | 6M |
| 2. | a) | Discuss about the various Non-destructive tests of hardened concrete. | 6M |
| | b) | Discuss the need and advantages of Non-destructive testing. | 6M |
| 3. | a) | Write a short note on rehabilitation of structural element. | 6M |
| | b) | What is repair? What are the various stages of repairs? | 6M |
| 4. | a) | What are the different types of strengthening techniques? Explain each briefly. | 6M |
| | b) | Explain how the flexural strengthening can be done. | 6M |
| 5. | a) | Explain the applications of Fibre Reinforced Concretes? | 6M |
| | b) | What are the factors influencing the properties of Fibre Reinforced Concrete? | 6M |
| 6. | | What is meant by high performance concrete? Explain the properties, uses and manufacture of high-performance concrete. | 12M |
| 7. | | Define light weight concrete and explain in detail the classification of light weight concrete. | 12M |
| 8. | a) | What are the different tests of hardened concrete? Explain any one test | 6M |
| | b) | How do you measure corrosion? | 6M |