

AR22

CODE: 22MCM1005

SET-1

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)

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

METROLOGY AND COMPUTER AIDED INSPECTION
(COMPUTER INTEGRATED MANUFACTURING)

Time: 3 Hours

Max Marks: 60

Answer any FIVE questions
All questions carry EQUAL marks

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|----|----|--|------|
| 1. | a) | Clearly define metrology and its significance in various fields | 6M |
| | b) | Explain different types of measurement errors | 6M |
| 2. | | Describe in detail various Surface Roughness Measurement Methods | 12 M |
| 3. | | Demonstrate the working principle of Tool Makers Microscope with suitable sketch. List out advantages and applications | 12M |
| 4. | a) | What is a CNC CMM and how does it differ from a conventional CMM | 6M |
| | b) | What is a Laser Scanning Gauge and how does it work? | 6M |
| 5. | a) | Brief about Vision System and provide an overview of Computer Imaging Systems | 6M |
| | b) | Illustrate the Ray-Based Scanning Techniques? | 6M |
| 6. | a) | Elucidate Nano metrology and the key principles of Nanometrology | 6M |
| | b) | What are the challenges in Nano metrology? | 6M |
| 7. | a) | Demonstrate the significance of dimensional and form tolerances in engineering applications | 6M |
| | b) | Demonstrate the working principle of Profilometer and Key Parameters | 6M |
| 8. | a) | Explain the concepts of Non-Contact and In-Process Inspection. | 6M |
| | b) | State applications of Machine vision in inspection | 6M |

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)****I M. Tech I Semester Regular & Supplementary Examinations, February, 2025****CRYPTOGRAPHY AND NETWORK SECURITY
(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) | List the various types of attacks and explain. | 6M |
| | b) | How to perform different permutations on the plain text letters in transposition techniques? Explain with example. | 6M |
| 2. | a) | Write about the round functions and key expansion of IDEA algorithm. How it is different from DES? | 6M |
| | b) | Describe Triple DES and its applications. | 6M |
| 3. | a) | Describe RSA Algorithm and Estimate the encryption and decryption values for the RSA algorithm parameters. | 6M |
| | b) | Explain about Secure Hash Algorithm. | 6M |
| 4. | a) | What is Kerbero? Explain the different versions of Kerberos? | 6M |
| | b) | Discuss about Electronic Mail Security | 6M |
| 5. | a) | Briefly explain the architecture of IP Security | 6M |
| | b) | Explain about ESP Protocol. | 6M |
| 6. | a) | Explain about Intrusion detection system | 6M |
| | b) | List out various types of viruses and explain | 6M |
| 7. | a) | Describe about Symmetric Cipher Model. | 6M |
| | b) | Explain about AH Protocol with an example. | 6M |
| 8. | a) | Explain the concept of trusted systems | 6M |
| | b) | Explain the key expansion and round functions of Blowfish algorithm. | 6M |

AR22

CODE: 22MSE1007

SET-1

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

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

**Structural Health Monitoring
(STRUCTURAL ENGINEERING)**

Time: 3 Hours

Max Marks:60

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

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| 1. | a) | Describe the types of maintenance activities and their roles in improving structural health. | 6M |
| | b) | Discuss the impact of environmental factors on the health of structures. | 6M |
| 2. | a) | Discuss the technologies used in Structural Health Monitoring and their applications. | 6M |
| | b) | Describe the various measures used in Structural Health Monitoring (SHM). | 6M |
| 3. | a) | What is a structural audit, and why is it important for assessing the health of structures? | 6M |
| | b) | Discuss the common causes of structural collapse and the role of investigation in determining the root cause. | 6M |
| 4. | a) | How does a structural audit contribute to proactive maintenance and failure prevention? | 6M |
| | b) | What is the process of managing a structural collapse investigation? | 6M |
| 5. | a) | Describe the role of static field tests in structural health monitoring. | 6M |
| | b) | How do static field tests differ from dynamic field tests? Discuss with examples. | 6M |
| 6. | a) | Explain the various types of static field tests used in structural assessment. | 6M |
| | b) | Describe the procedure for conducting dynamic field testing on a bridge. | 6M |
| 7. | a) | Explain the concepts and importance of structural health monitoring techniques. | 6M |
| | b) | Explain about electro mechanical impedance technique for structural health monitoring (SHM). | 6M |
| 8. | a) | Discuss about smart materials and techniques used in structural rehabilitation. | 6M |
| | b) | Discuss the role of site visits and case studies in planning structural repair and rehabilitation. | 6M |