

AR16

CODE: 16MTE1012

SET-2

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

I M. Tech. II Semester Regular Examinations, JULY, 2017

**ENERGY MANAGEMENT
(THERMAL ENGINEERING)**

Time: 3 Hours

Max Marks:60

Answer any FIVE questions
All questions carry EQUAL marks

1. (a) Explain the principles of energy management in detail? 6 M
(b) Draw a block diagram of the energy management program showing the various components? 6 M
2. (a) Explain the role of an energy manager in the energy management program? 6 M
(b) Discuss about the energy policy and its importance? 6 M
3. (a) What are the preliminary works an energy auditor should perform before going for an audit visit? 6 M
(b) "Safety is a critical part of any energy audit" Write down the safety checklist an energy auditor should be careful? 6 M
4. (a) Briefly explain the technologies for energy conservation? 8 M
(b) Write short notes on Process integration? 4 M
5. (a) Explain the different types of depreciation? 6 M
(b) Briefly discuss about the budget considerations in economic analysis? 6 M
6. (a) What is the selection criteria of an energy consultant? Explain. 6 M
(b) Write short notes on payback and annualized costs. 6 M
7. What are solar collectors. Explain any two such collectors with neat diagram? 12 M
8. Explain about the performance of Turbines and systems in a WECS systems? 12 M
Discuss the effect of loadings and acoustics in a wind energy conversion system?

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)****I M.Tech. II Semester Regular Examinations, JULY, 2017****DETECTION AND ESTIMATION OF SIGNALS
(DECS)**

Time: 3 Hours

Max Marks:60

Answer any FIVE questions
All questions carry EQUAL marks

1. (a) Define Transfer function with an example 4M
(b) Find the transfer function and unit sample response of the second order difference equation with zero initial condition 8M
$$y(nT) = x(nT) - 0.5 y(nT-T)$$
2. (a) Explain in detail about Fourier transform representation of a discrete time signal. 8M
(b) Prove that the frequency response of a discrete system is a periodic function of the frequency. 4M
3. (a) Explain the optimum detection algorithms in detail with suitable examples 6M
(b) Explain how to find a matched filter coefficients by optimum detection algorithm 6M
4. (a) Explain in detail about Maximum likelihood estimator with an example. 6M
(b) Explain generation and shaping of pseudorandom noise 6M
5. (a) Explain in detail about N-P criterion for Radar with a neat sketch. 6M
(b) Explain how the band limited random signal can be reconstructed from its samples 6M
6. (a) Explain the recursive estimation technique for random signals 8M
(b) Write a short note on kalman filter 4M
7. (a) Explain estimation of time-varying signals with an example 8M
(b) Write a short notes on Filtering 4M
8. Write a short notes on
(a) Autocorrelation with properties 3M
(b) power spectral density & its properties 3M
(c) Bayes estimator 6M

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

I M.Tech. II Semester Regular Examinations, JULY, 2017

POWER ELECTRONIC CONTROL OF AC DRIVES

(PED)

Time: 3 Hours

Max Marks:60

Answer any FIVE questions
All questions carry EQUAL marks

1. (a) Explain Current Fed Inverter Drive Independent Current and Slip Control and also speed and flux Control 6 Marks
(b) Explain Current Fed Inverter Drive with Efficiency Optimization Control Using Flux Program 6 Marks
2. Explain the Static Kramers Drive in detail Induction Motor Drives in detail with neat sketches 12 Marks
3. Derive and implement using flow chart the Indirect Vector control scheme. 12 Marks
4. Differentiate between constant torque angle control and unity power factor control in synchronous motor drives. Sketch and discuss in detail the performance characteristics for the constant torque angle control and the UPF control in permanent magnet synchronous machine drive 12 Marks
5. Explain the operation of current controlled Brushless dc motor Servo drive 12 Marks
6. (a) Explain the Operation of Variable Reluctance Motor and also Explain the Torque production of the Variable Reluctance Motor 6 Marks
(b) Explain the Current Control Variable Reluctance Motor Servo Drive 6 Marks
7. A PMSM has the following parameters: $R_{sn} = 0.173$ p.u., $L_{dn} = 0.435$ p.u, $L_{qn} = 0.699$ p.u., $V_{sn} = 1.45$ p.u., and $I_{sn} = 1.0$ p.u. Find (i) the maximum speed with and without neglecting stator resistances and (ii) the steady-state characteristics in the flux weakening region 12 Marks
8. Explain Static Scherbius Drive of Induction Motor Drives in detail with neat sketches and their mode of operation 12 Marks

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)****I M.Tech. II Semester Regular Examinations, JULY, 2017****ALGORITHMS FOR VLSI DESIGN AUTOMATION
(VLSI System Design)**

Time: 3 Hours

Max Marks:60

Answer any FIVE questions
All questions carry EQUAL marks

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| 1. | What are the most important entities in VLSI Design? Explain about each of them? | 12 |
| 2. | (a) Explain Depth-first searching with necessary sketches and examples | 6 |
| | (b) Explain Dijkstras's shortest path algorithm? | 6 |
| 3. | (a) Give Bellman-Ford Longest-Path Algorithm with example | 8 |
| | (b) Explain the importance of floor planning in IC design | 4 |
| 4. | (a) Discuss routing in VLSI Design | 5 |
| | (b) Explain Kernighan-Lin Algorithm for partitioning with example. | 7 |
| 5. | (a) Define synthesis and explain two-level logic synthesis. | 7 |
| | (b) Explain the importance and types of design verification | 5 |
| 6. | Explain Routing Algorithm for Staggered Model with an example | 12 |
| 7. | (a) Illustrate ALAP Scheduling Algorithm with an example. | 8 |
| | (b) Give Differences between FGPA and ASIC | 4 |
| 8. | Explain MCM routing algorithms in detail | 12 |

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)****I M.Tech. II Semester Regular Examinations, JULY, 2017****SOFTWARE ENGINEERING
(Computer Science and Engineering)**

Time: 3 Hours

Max Marks:60

Answer any FIVE questions
All questions carry EQUAL marks

1. (a) Discuss Waterfall Model and Spiral Model ? 6M
(b) Explain the software requirements document? 6M
2. (a) Explain the Change Management Process? 6M
(b) Explain Requirements Management Process? 6M
3. (a) Explain Object and Object Classes? 6M
(b) What are the metrics for software quality? Explain in detail. 6M
4. (a) Explain the Black Box and white Box testing ? 6M
(b) Mention the Requirements Elicitation techniques?
5. (a) Explain the process areas required to achieve various maturity levels in CMMI. 8M
(b) Discuss concurrent Model with a neat diagram? 4M
6. (a) Explain about regression testing in detail. Explain the importance of it. 8M
(b) Differentiate between regression and integration testing. 4M
7. (a) Explain various deployment level design elements in detail. 6M
(b) Draw a UML deployment diagram for safe home system. 6M
8. (a) Elaborate on the role of quality control and quality assurance in achieving software quality. 6M
(b) What is software re-engineering? Explain 6M

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)****I M.Tech. II Semester Regular Examinations, JULY, 2017****COMPUTER APPLICATIONS AND CAD
(Structural Engineering)**

Time: 3 Hours

Max Marks:60

Answer any FIVE questions
All questions carry EQUAL marks

1. (a) What are the essential features of a typical CAD? 6M
(b) List out Newman's ground rules that are to be considered while selecting graphics software. 6M
2. (a) Explain the procedure for scaling, Transformation and Rotation in Graphics terminals? 6M
(b) Transform a line joining (2,3) and (4,6) by scaling it by twice and rotating it by 30 degrees? 6M
3. Write a STAAD Pro program for analysis of a simply supported beam of length 'L' with a point load 'P' at each quarter of the span. 12M
4. Write a STAAD Pro program for analysis of a Cantilever beam of length 'L' with a uniformly distributed load 'w' on the beam from 1/4 to 1/2 length of the span 12M
5. (a) Differentiate Designer and Computer? 6M
(b) Write short notes on window and view. How can you transform view object into window coordinates? 6M
6. Explain the stiffness method for pin jointed truss with an example? 12M
7. Explain the following 12M
 - (a) Menu handling
 - (b) Screen management
 - (c) Dialogue boxes
 - (d) Soft key commands
8. Explain the stiffness method for Rigid jointed plane frames with a neat sketched example? 12M