

AR13

Set-01

CODE: 13MPE1014

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

I M.Tech II Semester Regular Examinations, July – 2014

**INTELLIGENT CONTROL
(Power Electronics and Electric Drives)**

Time: 3 hours

Max. Marks: 60

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

- 1) a) Differentiate symbolic reasoning system and rule-based system. [6M]
b) Explain basic mathematical model of an Artificial Neural Network. [6M]
- 2) a) Discuss the principal component analysis with suitable example. [6M]
b) Explain the control of non linear dynamic system case study. [6M]
- 3) Explain in detail how to solve optimization problem using ant-colony search technique. [12M]
- 4) a) What is the different learning strategies used in neural networks? Explain in detail [6M]
b) What is data pre-processing? Explain about Fourier transformation method. [6M]
- 5) a) Differentiate crisp set and fuzzy set with suitable example. [6M]
b) Explain about fuzzy modeling and control schemes for nonlinear systems. [6M]
- 6) a) Explain in detail the basic fuzzy set operation. [6M]
b) Write a short note on design of fuzzy PI controller. [6M]
- 7) Explain flux programming efficiency improvement of three phase induction motor. [12M]
- 8) a) Write about speed estimation of induction motor. [6M]
b) What is space vector modulation? Explain in detail space vector PWM. [6M]

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Set-01

Code: 13MTE1017

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

**I M.Tech II Semester Regular Examinations, July-2014
THERMAL & NUCLEAR POWER PLANTS
(Thermal Engineering)**

Time: 3Hours

Max. Marks:

60

**Answer any FIVE Questions
ALL questions carry equal marks**

01. Name the different types of coals and explain each of them.
02. (a) Draw the general layout of steam power plant with neat sketch and explain the working of it.
(b) Write the different types of condensers that are used in steam power plants.
03. (a) Draw the combined cycle power plant with neat sketch and explain.
(b) Write the advantages and disadvantages of steam power plant with gas power plant.
04. (a) What are the parameters that we need to consider for the site selection of nuclear power plants?
(b) Write a brief note on fission and fusion reactions.
05. A Power plant has the following annual factors: Load factor = 0.75; capacity factor = 0.60; use factor = 0.65, maximum demand is 60MW.
Estimate (a) The annual energy production. (b) The reserve capacity over and above the peak load. (c) The hours during which the plant is not in service per year.
06. Discuss open and closed feed water heaters with neat sketch.
07. (a) Draw the load curve and load duration curve and explain them.
(b) Write about neutron life cycle.
08. (a) Write the principle of thermocouple and name the different thermocouples with different materials used in them.
(b) Write about Orsat analyses with neat sketch.

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Set - 02

Code No. 13MVL1013

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

I M.Tech II Semester Regular Examinations, July-2014

SYSTEM MODELING AND SIMULATION

(Common to VLSI System Design and DECS)

Time: 3 hours

Max Marks: 60

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

1. a) Explain about the steps involved simulation model with neat diagram.
b) Explain about alternative approaches to modeling and simulation.
2. a) Explain about Object oriented simulation.
b) Discuss about the general purpose simulation package with an example.
3. a) Write about guidelines for determining levels of model detail.
b) Discuss about the techniques for increasing model credibility.
4. a) Explain modeling input signals and delays.
b) discuss about numerical experimentation.
5. a) Construct a petri net for producer and consumer problem.
b) Write about system encapsulation.
6. Explain the following.
 - a) Poisson process.
 - b) Discrete time Markov process.
7. a) Explain about simulating queuing system.
b) Explain about types of Queues.
8. a) What is system identification ?Explain about alpha/beta trackers.
b) Discuss about modeling and simulation methodology

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Set-02

Code No: 13MIT1013

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

I M.Tech. II Semester Regular Examinations, July – 2014

INFORMATION SECURITY

(Information Technology)

Time: 3 Hours

Max. Marks: 60

Answer any Five Questions

All Questions carry equal marks

1. a) What is a network security? Draw the model for network security and explain in detail. (6M)
b) Summarize different block cipher modes of operation. (6M)
2. Abbreviate DES. Illustrate the procedure involved in DES encryption and show that the DES decryption process is the reverse of DES encryption. (12M)
3. a) What are the various problems that lead to create Kerberos environment. (6M)
b) Explain Kerberos environment with neat diagram? (6M)
4. a) Describe in detail the principal services provided by PGP. (6M)
b) Draw the structure of ESP packet format and describe in detail Encapsulating Security Payload. (6M)
5. Write an algorithm for Diffie- Hellman key exchange. Prove that a secret key is exchanged between source & destinations by taking a simple example. (12M)
6. a) Describe in detail SSL handshake protocol. (6M)
b) Write a short notes on SNMP (6M)
7. a) What is a firewall? Describe in detail the design principles of firewalls and its types. (6M)
b) Illustrate different types of intrusion detection mechanisms. (6M)
8. a) List out the ingredients of public-key encryption scheme. (4M)
b) Write an algorithm for RSA public-key encryption and Perform encryption and decryption using RSA algorithm for the following: (8M)
 $p = 17$ $q = 11$ and $M = 88$

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Set-01

Code No: 13MCS1011

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

I M.Tech II Semester Regular Examinations, July-2014

MOBILE COMPUTING

(Computer Science and Engineering)

Time: 3 hours

Max Marks: 60

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

1. a) List and explain some of the application areas of mobile computing [4M]
b) What are the different security services that GSM provides? Illustrate how authentication and encryption are carried out in GSM with the help of diagrams [8M]
2. a) Compare FDMA, TDMA & CDMA in not less than 6 aspects [6M]
b) What is CSMA and explain the three different versions of CSMA schemes [6M]
3. a) Explain all the entities that are involved in Mobile-IP [6M]
b) Explain Snooping TCP. What are its advantages and disadvantages [6M]
4. a) List and explain the context types in context aware computing [6M]
b) Explain Push based data delivery mechanisms in detail [6M]
5. a) What are the security threats to a MANET? Why a MANET faces greater security threats than a fixed infrastructure network [6M]
b) Why is routing in multi-hop adhoc networks complicated? What are the special challenges [6M]
6. a) List some advantages of Bluetooth [2M]
b) With a diagram of the protocol stack, explain the functions of radio, baseband and link manager in Bluetooth [10M]
7. a) Explain about the WAE logical model with the help of a diagram. [8M]
b) Describe briefly about Wireless Datagram Protocol [4M]
8. a) What is handover? Why is it required? What are the different handover scenarios in GSM [6M]
b) Draw the GPRS architecture reference model and explain its components [6M]
