AR13 **Set-01**

Code: 13MTE1017

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I M.Tech II Semester Regular / Supplementary Examinations, August-2015
THERMAL AND NUCLEAR POWER PLANTS
(Thermal Engineering)

Time: 3Hours **Max. Marks: 60**

Answer any FIVE Questions
ALL questions carry equal marks

1. (a) Why the steam-power plants, more popular than gas-power plants? Explain the reasons. (6M)
   (b) Name the recent trends in thermal-power generation. Explain any two techniques. (6M)

2. (a) What are the functions of boiler accessories? Explain briefly. (2M+2M+2M)
   (b) Why we need vacuum in a surface condenser of a steam power plant? Explain the reasons. (6M)
3. (a) What are the main characteristics of fluidized bed combustors? Describe briefly. (5M)
   (b) What do you understand about waste heat recovery systems? Name the 'commercial waste heat recovery units' and state their applications. (3M+2M+2M)

4. (a) Locate the nuclear power plants in India. Is there any scope for expanding nuclear power plants in India? Give reasons. (6M)
   (b) What are the factors to be considered while selecting site for setting up a nuclear-power plants? (6M)

5. (a) Explain the following: (i) Load factor, (ii) Utilization factor, and (iii) specific economic energy. (2M+2M+2M)
   (b) Draw some typical performance characteristics of power-plant and explain the significance of each curve. (3M+3M)

6. (a) With a neat diagram, describe the constructional features and principle of working of a 'bourdon-tube' pressure gauge used for the measurement of liquid pressure. (4M+3M)
   (b) What are the combustion method(s) do you suggest for reducing the NOx emission levels from a coal-based power-plants? Explain briefly. (5M)

7. (a) What are the methods do you suggest to increase the thermal efficiency of a Rankine cycle. Explain' with the help of 'T-s' diagram. (5M+2M)
   (b) What do you mean by co-generation? What are the advantages of co-generation power plants? (2M+3M)

8. Write a short notes on the following:
   (a) Safety issues related to nuclear power generation (6M)
   (b) Economics of: (i) hydro-electric and (ii) thermal power generation. (3M+3M)

****

AR13 **Set - 01**

Code No. 13MVL1013

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I M.Tech II Semester Regular / Supplementary Examinations, August-2015

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) Write about sytems, Models and Simulation .
b) With help of flow diagram, explain the simulation of single server queuing system

2. Discuss about desirable software features

3. a) Describe the guidelines for determining levels of model detail
b) Write about the techniques for increasing model validity .

4. a) Explain modeling input signals and system integration
b) Discuss about motion control models.

5. a) Explain about various disturbance signals.
b) Write short notes on state machines.

6. Explain the following
a) Random walks
b) Continues –time Markov process

7. a) Explain about simulating queuing system
b) Discuss about multiple servers

8. a) What is system identification ?Explain about alpha/beta trackers.
b) Discuss about multidimensional optimization.

****

AR13 **Set-01**

Code No: 13MIT1013

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I M.Tech. II Semester Regular / Supplementary Examinations, August-2015

INFORMATION SECURITY

(Information Technology)

Time: 3 Hours **Max. Marks: 60**

Answer any Five Questions

All Questions carry equal marks

1. Describe the security services which are required to the information? Explain a model for Internetwork Security. (12M)

2. Explain the key distribution approaches of message authentication. (12M)

3. What are the principles of public key cryptography? If the ciphertext as C= 11, whose public key is e= 7, n= 187 then What is the plaintext M ? (12M)

4. Explain the relationship between Public-key cryptography and the Certification authority with example. (12M)

5. Explain the concept of Digital signatures with Digital Signature Standard. (12M)

6. What is Certification Authority and Explain its role in S/MIME. (12M)

7. Write a short notes on : (12M)
   a) Alert protocol
   b) SET participants
   c) Padding in SSL and TLS

8. List the characteristics of a good firewall implementation? Explain in detail various types of firewalls. (12M)

****

SET-1

AR13

Code No: 13MPE1014

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I M. Tech. II Semester Regular/ Supplementary Examinations, AUGUST – 2015

INTELLIGENT CONTROL
(Power Electronics & Electric Drives)

Time : 3 hours **Max Marks :60**

Answer any FIVE questions
All questions carry equal marks

1. a) Compare biological and artificial neural networks.
   b) Explain the basic building blocks of artificial Neural networks

2. Consider three orthogonal vectors [1 -1 1 -1] [-1 1 1 -1] [1 1 -1 -1]. Find the weight matrix to store all the three orthogonal vectors and test the response of the net for each of the input vectors given.

3. Train a bipolar continues network using Hebbs rule with initial weight vector W^1 and three input patterns X_1, X_2, X_3, and leaning constant as unity value.

W^1 =1	X_1=1	X_2=0	X_3=1
-1	-2	-0.5	1
0	1.5	-2.5	-1
0.5	0	-1.5	1.5

4. What is the Hopifield network? Describe how it can be used for analog to digital conversion.

5. Explain the convergence analysis property of the genetic algorithm with example

6. a) Discuss the different methods of de fuzzification with examples.
   b) Explain the fuzzy inference system of Mamdani and Sugeno methods.

7. Design a fuzzy PI controller to the D.C separately excited motor for the purpose of position control. Assume the data properly.

8. Explain the Neural network based speed controller for induction motor.

***

AR13 SET-2

Code No: 13MPE1013

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)

I M. Tech. II Semester Regular/ Supplementary Examinations, AUGUST – 2015

ANALYSIS OF DYNAMIC SYSTEMS
(Power Electronics & Electric Drives)

Time : 3 hours **Max Marks :60**

Answer any FIVE questions
All questions carry equal marks

1. a) Consider the sampled-data system of the fig.1.Determine its characteristic equation in the z-domain and ascertain its stability via the bilinear transformation.

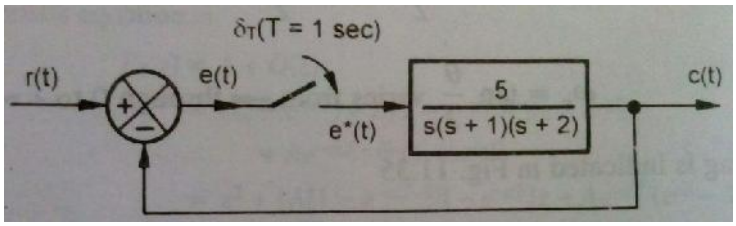

Fig (1)

b) Find the z-transform of the following
i) $\mathbf{k}^2 a^{k-1}; k \geq 1$ **ii)** $\mathbf{a}^k \cos k\Pi = (-a)^k$

2. a) Explain the stability analysis using bilinear transformation?
b) Explain the working of phase lag and phase lead controllers in w- domain?

3. Explain the design procedure for full and reduced order observers?

4. Construct a phase trajectory by delta method for a nonlinear system represented by the differential equation, $\ddot{x} + 4\dot{x} + 4x = 0$. Choose the initial conditions as x(0) = 1.0 and $\dot{x}(0) = 0$

5. Derive the expression for the describing function of the backlash nonlinearity?

6. a) consider the nonlinear system described by the equations

$$\mathbf{x}_1^{\cdot} = \mathbf{x}_2$$

$$\mathbf{x}_2^{\cdot} = -(1 - |x_1|)\,\mathbf{x}_2 - \mathbf{x}_1$$

Find the region in the state plane for which the equilibrium state of the system is asymptotically stable (by Lyapunov function)
b) Explain the Krasooviski's method of constructing Lyapunov functions for nonlinear systems?

7. a) What is meant by liapunov's stability criterion? What are the basic theorms on liapunov's Stability?
b) How to apply liapunov's function for both linear and non-linear systems?

8. Explain the following
i) Lyapunov direct Method
ii) Krasooviski's method
iii) Variable gradient method

***

AR13 **Set-01**

Code No: 13MCS1011

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

I M.Tech II Semester Regular / Supplementary Examinations, August-2015

MOBILE COMPUTING

(Computer Science and Engineering)

Time: 3 hours **Max Marks: 60**

Answer any FIVE questions
All questions carry EQUAL marks

1. a) Describe the Security Services that are offered by GSM [8M]
   b) define MTC and MOC and explain them. [4M]

2. a)Explain about Multiple Access with Collision Avoidance(MACA) [6M]
   b) what are the schemas introduced to avoid the problems of CSMA/CD [6M]

3. a) List and describe the requirements of mobile IP [8M]
   b) what is Tunneling in Mobile IP [4M]
4. a) Explain about DHCP [8M]
   b) Describe about indirect TCP [4M]

5. a) Explain about pull based mechanism [6M]
   b) Explain about hybrid based mechanism [6M]

6. a)Explain about Caching invalidation mechanisms [6M]
   b) explain about context-aware computing [6M]

7. a) Explain about on-demand multicast routing protocol [6M]
   b)Describe MANET how does MANET differ from a fixed infrastructure network [6M]

8. a) Explain networking security in Bluetooth [6M]
   b) Explain link management in Bluetooth [6M]

****