AR13

NONCONVENTIONAL ENERGY SOURCES
(Thermal Engineering)

Time: 3 Hours   Max Marks: 60

Answer any FIVE Questions
All questions carry EQUAL marks

1		Explain the working of Sun-shine recorder with a neat sketch	[12M]
2	(a)	Describe the active and passive space heating system.	[6M]
	(b)	What is the solar photo voltaic power generation what are the main elements of a PV system.	[6M]
3	(a)	Define and classify geothermal sources.	[6M]
	(b)	What are the limitations of flashed steam system and what are the advantages of double flash system.	[6M]
4	(a)	Describe the principle of working and constructional details of a basic thermionic generator.	[6M]
	(b)	Explain various methods of production of hydrogen gas	[6M]
5	(a)	How are biogas plants classified? Explain them briefly.	[6M]
	(b)	Explain with a simple sketch, working of a closed cycle MHD system	[6M]
6	(a)	What is the basic principle of wind energy conversion? Derive the expression for the power developed due to wind.	[6M]
	(b)	Write a brief note on design and constructional features of a Biogas plant	[6M]
7	(a)	Discuss the advantages and disadvantages of wind energy conversion systems.	[6M]
	(b)	Explain the principle of Ocean Thermal Energy Conversion.	[6M]
8		Write short notes on a) Power from tides	[6M]
		b) Wave power systems	[6M]

Code No.13MDE1002

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TAKKALI
(AUTONOMOUS)
I M.Tech. I Semester Regular / Supplementary Examinations, February-2016
ADVANCED DIGITAL SIGNAL PROCESSING
(Digital Electronics and Communication Systems)

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

Answer any FIVE questions
All questions carry equal marks
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1. a)State prove circular convolution property of DFT
    b)Explain Goertzel algorithm.

2. Explain the following methods for the design of digital filters
    (a) Least Squares design method (b)Wiener filter method.

3. a)Discuss the design of IIR Chebyshev filters
    b) Convert the analog band pass filter with system function
    $H(s) = \frac{0.1+s}{9+(S+0.1)^2}$ into a digital IIR filter by means of the impulse invariant method

4. a) Discuss Direct form, cascade form realization structures of FIR systems.
    b)Determine the lattice coefficients corresponding to the FIR filter with system function
    $H(z)=1+(13/14)Z^{-1}+(5/8)Z^{-2}+(1/3)Z^{-3}$

5. Explain the estimation of autocorrelation and power spectrum of random signals
.
6. What is Non parametric method of power spectrum estimation? Compute the Welch method to estimate the power spectrum estimation.

7. Explain the following.
    a)Yule –Waker method for AR model
    b)The Burg method for AR model

8. Write short notes on the following
    a)ADC quantization noise in fixed point DSP system
    b)Finite word length effect in FFT algorithm

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AR13

Answer any FIVE Questions
All questions carry EQUAL marks

1 (a) What is meant by renewable energy sources? Give its principle and advantages   [6M]
   (b) How solar air collectors are classified   what are the main applications of a   [6M]
        drier?

2 (a) With the help of a neat sketch, describe a solar heating system using water   [6M]
        heating solar collectors. Give the advantages and disadvantages of this method.
   (b) What is the solar photo voltaic power generation what are the main elements of   [6M]
        a PV system.

3 (a) Describe the basic components of wind energy conversion systems? How are   [6M]
        they classified?
   (b) What is the basic principle of wind energy conversion? Derive the expression   [6M]
        for the power developed due to wind.

4 (a) What is the principle of working of geothermal power plants? Give the   [6M]
        applications of geothermal energy?
   (b) Give the advantages and disadvantages of geothermal energy over other energy   [6M]
        forms

5 (a) Compare the relative performance of a floating drum and fixed drum type bio-   [6M]
        gas plants**.**
   (b) Explain the operation of anaerobic digestion with respect to biogas power   [6M]
        generation

6 (a) Discuss the principle of MHD generation. Derive the expression for the   [6M]
        voltage and power output of an MHD generator
   (b) What is the basic principle of ocean thermal energy conversion?   [6M]

7   Explain the operation of open cycle and closed cycle systems of MHD power   [12 M]
        generation with a neat sketch

8   Write short note on a) Diesel generator and photo voltaic system.   [6M]
                             b) Wind- photo voltaic systems   [6M]

Code No: 13MVL1007

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I M.Tech. I Semester Regular / Supplementary Examinations, February-2016
Electronic Design Automation Tools
(VLSI System Design)

Time: 3 hours   Max. Marks: 60

Answer any FIVE questions
All questions carry equal marks

1. a) Explain about different levels of design description? Write the syntax for Vrilog
       Module?   (6M)
    b) Write a Verilog Module and Test bench for Full adder using basic primitives?   (6M)

2. a) Explain about data types in verilog? Write a verilog module and test bench for 2x1
       multiplexer?   (8M)
    b) Write a Verilog module and test bench for full adder?   (4M)

3. Explain the following constructs:
       i) Parameters ii) System tasks iii) Memory iv) operators?   (12M)

4. a) Explain different types of simulations?   (6M)
    b) Write about FSM synthesis?   (6M)

5. a) How Delays are modelled in Verilog? Explain by using predefined constructs? (6M)
    b) Compare Functional verification and timing verification with an example   (6M)

6. a) Design a PSpice model for simple A/D converter?   (6M)
    b) Write PSpice model for Transistor   (6M)

7. a) Explain how a current mirror circuit is simulated?   (8M)
    b) How a digital signal simulator is configured?   (4M)

8. Explain different Layout tools for PCB?   (12M)

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AR13 $\boxed{\textbf{Set-02}}$

Time: 3 hours   **Max Marks: 60**
Answer any FIVE questions
All questions carry equal marks

1. a) Why do we need static members explain with an example.   6m
   b) How does Java supports multiple inheritance? Explain   6m

2. a) What is recursion? Write short notes on inner classes.   4m
   b) What is an abstract class? Explain with an example.   5m
   c) Explain this keyword with an example.   3m

3. a) Write a Java program for Creating and Accessing a package.   6m
   b) Explain finally block in exception handling with an example.   6m

4. a) Write a Java program to solve Producer and Consumer problem using multi threading. 6m
   b) Write short notes on thread priorities.   6m

5. a) What is an Adapter class? Write a Java program to handle Item events.   6m
   b) What are the methods supported by Key Listener Interface. Explain them with an example.
          6m
6. a) Explain the syntax and functionality of different methods related to frames.   6m
   b) Explain the life cycle of an applet in detail.   6m

7. a) Write an applet program to design simple calculator with any two arithmetic operations.
          6m
   b) Explain JApplet, JFrame and JComponent with examples.   6m

8. a) Explain the Interfaces provided by java.util package.   6m
   b) Explain how JTabbedPane can be put to work in Java Swings.   6m

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ADVANCED CONCRETE TECHNOLOGY
(STRUCTURAL ENGINEERING)

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

Answer any FIVE questions
All questions carry equal marks

1. What are the various types of cements and explain any three in details?

2. Explain the Schmidt's Rebound Hammer and Pullout Tests with neat sketches?

3. Explain the various factors influencing on corrosion of Reinforcement?

4. Short note on i. Reconstruction of Corbel Bearing
   ii. Externally Mounted Compression Struts

5. a) Explain the applications of Fibre Reinforced Concretes?
   b) What are the Uses of Fibre?

6. Short note on i. Air- Entraining admixtures
   ii. Water- reducing admixtures
   iii. Retarding admixtures

7. What is repair? What are the various stages of repairs?

8. (a). Explain various types of Fibres?
   (b).What are the reasons for using admixtures?