AR13 **Set-01**

Code No: 13MTE1012

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I M.Tech. II Semester Regular / Supplementary Examinations, August-2015
ENERGY MANAGEMENT
(THERMAL ENGINEERING)

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

Answer any FIVE questions
All questions carry equal marks

1. a)Distinguish preliminary and detailed energy audits
   b) With a suitable example differentiate
      (i) Energy conservation and energy efficiency
      (ii) Renewable energy and sustainable energy **(6M+6M)**

2. a) Provide two examples for sensible and latent heat storage materials? Which one can be preferred and why? List four important thermophysical properties that are to be considered for the selection of latent heat storage materials
   b) What is power factor and with what instrument it can be measured. **(10M+ 2M)**

3. Discuss the methods of investment appraisal with an example **(12M)**

4. a) A coal has the following ultimate analysis: percentage by mass
   Carbon: 90, Hydrogen: 3, Oxygen: 2.5, Nitrogen: 1, Sulfur: 0.5, Ash: 3. Calculate the volumetric air supply rate required if 500 kg/h of coal is to be burned at 20% excess air.
   b) Given below is the data for two equipment. Find out which alternative you will select by using present worth method. **(4M+8M)**

	Equipment-I	Equipment-II
Initial cost P	Rs. 12,000	Rs. 18,000
Annual operating cost	Rs. 1000	Rs. 800
Life of the equipment	8 years	8 years
Salvage value	Rs. 2000	Rs. 5000
Interest rate (i)= 5%		

5. With a neat sketch explain the basic components of a wind energy conversion system **(12M)**

6. a) List out and explain various safety precautions that an energy auditor should consider before performing energy audit
   b) Distinguish thermocouple and thermistor?
   c) Distinguish higher heating value (HHV) and lower heating value (LHV) **(6M+3M+3M)**

7. a) Consider that you have conducted an energy audit (both electrical and thermal) for an industry. Briefly list out the details which are to be provided in the energy audit report
   b) What is Energy Conservation Act 2001? **(10M+2M)**

8. a) Briefly discuss about net present value (N.P.V) method of investment appraisal
   b) A project with a four year life and no salvage value costs $2500, the cash flows are estimated to be $1000 per annum and the criterion rate of return is 12 percent. Can this project be undertaken? Provide your decision with suitable explanation. **(3M+9M)**

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AR13 **Set-01**

Code No: 13MDE1004

ADITYA INSTITUE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I M.Tech II Semester Regular / Supplementary Examinations, August-2015

WIRELESS COMMUNICATION AND NETWORKS
(Digital Electronics and Communication Systems)

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

Answer any FIVE questions
All questions carry equal marks

1. a) Distinguish between first, second and third generation of wireless networks. [6M]
   b) Appraise the importance of traffic routing in wireless networks. [6M]

2. a) Explain Space Division Multiple Access (SDMA) [6M]
   b) Explain channel capacity and derive C/I ratio expressions. [6M]

3. a) Explain channel capacity of TDMA [6M]
   b) Highlight the importance of Channel capacity of CDMA, CDMA and COM power control. [6M]

4. a) Explain CDMA In DSSS environment along with PN sequence properties with multiple cells. [6M]
   b) State M- sequences properties. [6M]

5. a) Explain WAP session with neat block diagrams. [6M]
   b) Describe Wireless Transaction protocol [6M]

6. a) Explain advantages and disadvantages of infrared LANs and compare wireless LAN Technologies [6M]
   b) Explain transmission techniques of Infrared LANs. [6M]

7. a) Explain Bluetooth architecture with neat diagram. [6M]
   b) Describe bluetooth usage models [6M]

8. a) Explain Frequency Hopping in Bluetooth services [6M]
   b) Explain Bluetooth packets in detail. [6M]

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AR13 **Set-01**

Code No: 13MIT1008

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I M.Tech. II Semester Regular / Supplementary Examinations, August-2015
PARALLEL COMPUTING ARCHITECTURE
(Information Technology)

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

Answer any FIVE Questions
All Questions carry EQUAL marks

1. What is Moore's Law? Discuss about Flynn's classification of Parallel Computers. [12M]
2. What is Cluster and Grid Computing? Explain about Message Passing Computing. [12M]
3. Explain in detail about the MPI and PVM with Examples. [12M]
4. What is Pipeline Computation? Explain about Pipelined computation with an example. [12M]
5. Explain in detail about Embarrassingly Parallel Computation Mechanisms. [12M]
6. What is a List Scheduling? Explain in detail about Static Load Balancing. [12M]
7. Explain in Detail about Global and Local Synchronization. [12M]
8. Discuss about Shared Memory Programming. [12M]

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AR13 **Set-02**

Code No: 13MPE1010

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

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

POWER ELECTRONIC CONTROL OF AC DRIVES

(Power Electronics and Electric Drives)

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

Answer any FIVE questions

All questions carry EQUAL marks

1. Explain close loop speed control of induction motor with torque and flux control.

2. Explain Voltage fed current regulated inverter induction motor drive with torque and flux control. Also explain performance characteristics of drive in acceleration mode.

3. Derive the torque expression developed by Kramer drive and draw torque-speed curves at different firing angles of inverter.

4. Explain static Scherbius drive system using dc link thyristor converters. Describe also modes of operation.

5. Develop Voltage model flux vector estimation with block diagram

6. a) Discuss constant torque angle control of synchronous motor.
   b) Explain the operation of synchronous motor with unity power factor control.

7. a) Explain characteristics of permanent magnet.
   b) Modeling of permanent magnet brushless DC motor

8. Describe briefly the operation and construction of stepper motor.

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AR13 **Set-02**

Code No: 13MVL1010

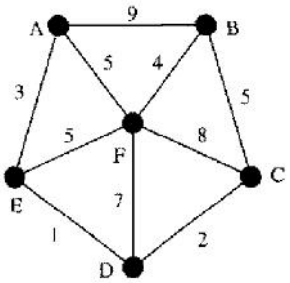
ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I M.Tech II – Semester Regular / Supplementary Examinations, August-2015
ALGORITHMS FOR VLSI DESIGN AUTOMATION
(VLSI System Design)

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

Answer any five questions
All questions carry equal marks

1. (a) Discuss various verification methods used to check the correctness of an integrated circuit without actually fabricating it? (6M)
   (b) Describe in detail the depth first search algorithm with the help of an example. (6M)

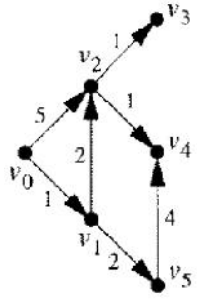
2. (a) Explain branch and bound algorithm and solve for a optimal tour cost for a travelling sales man problem given below in the figure using branch and bound algorithm. (8M)



   (b) Explain about ILP (4M)

3. (a) Describe in detail, genetic algorithm and its efficiency for optimal search problems. (6M)
   (b) Explain about Gajski's Y-Chart with a neat sketch. (6M)

4. (a) Explain the longest path algorithm and apply the algorithm to the DAC shown in figure. (6M)

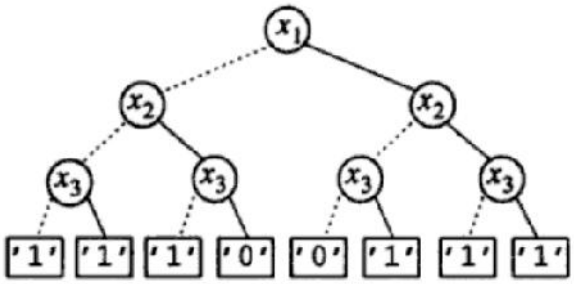


   (b) Describe any one of the formulation techniques for layout compaction (6M)

5. (a) Write note on constructive placement algorithm. (6M)
   (b) Explain floor planning concepts (6M)

6. Discuss in detail about gate level modeling and simulation (12M)

7. Explain the ROBDD principles. Obtain ROBDD for the following OBDD with neat diagrams. (12M)



8. Write short notes on
   (a) Scheduling algorithms (4M)
   (b) FPGA technologies (4M)
   (c) MCM physical design cycle (4M)

AR13 **Set-02**

CODE: 13MCS1008

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(Autonomous)

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

COMPUTER NETWORKS

(Computer Science and Engineering)

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

Answer any FIVE questions

All questions carry EQUAL marks

1. a) Explain ARPANET. (6M)
   b) Explain WAN. (6M)

2. a) Explain ATM. (6M)
   b) Explain wireless transmission media. (6M)

3. a) Explain IEEE 802.3 MAC frame format. (6M)
   b) Explain different framing techniques for data link layer. (6M)

4. What is adaptive routing? Explain in detail about distance vector routing. (12M)

5. What is cryptography and mention its components and explain public key cryptography with example. (12M)

6. a) Write in brief about UDP. (6M)
   b) What is port? Explain about different types of ports. (6M)

7. a) Explain slotted ALOHA. (6M)
   b) Explain CSMA/CA Technique. (6M)

8. a) Write short notes on multimedia. (6M)
   b) Write short notes on Ethernet. (6M)

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