SET-1

AR13

Code No: 13MTE1011

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

FUELS, COMBUSTION AND ENVIRONMENT
(THERMAL ENGINEERING)

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

Answer any FIVE questions
All questions carry equal marks

1.	a)	What are types of fuels	[6M]
	b)	What is proximate analysis of fuel, Explain in detail**?**	[6M]
2.	a)	How coal is classified? Explain composition of coal.	[6M]
	b)	Explain carbonization.	[6M]
3.		Explain flue gas analysis by using Orsat Apparatus with neat sketch.	[12M]
4.		The volumetric analysis of a sample of producer gas supplied to an engine is H_2=20%,CH_4=3%,CO=22%,CO_2=8% and N_2=47% i) Find the volume of air required for complete combustion of one m^3 of the gas. ii) If 50% excess air is supplied, find the percentage in volume after the products of Combustion has been cooled**.**	[12M]
5.		Explain different parameters influence flame speed.	[12M]
6.		What are different parameters influences the turbulent flame.	[12M]
7.		What is fluidized bed systems and give advantages.	[12M]
8.		Give the comparison regarding combustion systems for a gas fired and solid fuel fire systems.	[12M]

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AR13 **Set - 02**

Code No.13MVL1009

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TAKKALI
(AUTONOMOUS)
I M.Tech II Semester Regular / Supplementary Examinations, August-2015
DSP PROCESSORS AND ARCHITECTURE
(Common to VLSI System Design and DECS)

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

Answer any FIVE questions
All questions carry EQUAL marks
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1. (a) Explain how the signals are processed? Explain the advantages and various categories of Digital Signal Processing.
   (b) Explain the frequency domain representation of Linear Time Invariant Systems.

2. (a) Write in detail about DSP computational errors.
   (b) Explain the basic operations in converting a digital signal into an analog signal.

3. (a) Explain the circular addressing mode and bit reversed addressing mode.
   (b) Explain the features for external interfacing in connection with programmable DSP devices.

4. (a) Explain the interlocking mechanism taken over during the process of pipelining in DSP processors.
   (b) Explain pipelining and performance.

5. (a) Explain the instructions of TMS320C54xx processors with suitable examples.
   (b) Explain the data addressing modes of TMS320C54xx processor.

6. (a) Write short notes on PID Controller.
   (b) Discuss the features of Interpolation filters.

7. (a) Derive the optimum scaling factor for the DIF FFT butterfly.
   (b) Write notes on computation of the signal spectrum relevant to FFT algorithms.

8. (a) Write about memory space organization.
   (b) Explain CODEC interface circuit with an example and implement the relevant programming.

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AR13 **Set - 01**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(Autonomous)
I M.Tech, II Semester Regular / Supplementary Examinations, Aug – 2015
IMAGE PROCESSING
(Information Technology)

Time: 3 Hours Max. Marks: 60

Answer any FIVE questions
All questions carry EQUAL marks

1. a) Illustrate the fundamental steps of Digital Image Processing. [8M + 4M]
   b) Apprise the features of Image sensing and acquisition?

2. a) Sketch histograms of basic image types in image enhancement [6M +6M]
   b) Contrast Sharpening spatial Filters and frequency domain filtering

3. a) Discuss on color image enhancement with suitable examples [6M + 6M]
   b) Categorize the various types of color transformations. Explain

4. Write a short note on [4M + 4M + 4M]
   a) Mean Filter b) Order-Statistic Filter c) Adaptive Filter

5. a) Define wavelet transform. Discuss wavelet transform in both ID and 2D. [8M + 4M]
   b) State and design RGB color model in color image processing.

6. a) Examine the working model of geometric mean filtering [6M + 6M]
   b) Explain Minimum Mean Square Error (Wiener) Filtering with suitable examples.

7. a) Summarize the goals of Hit-Or-Miss transform in image compression [6M + 6M]
   b) Asses the need for morphological image on dilation and erosion

8. a) Differentiate between Point, Line and edge Detection [6M + 6M]
   b) Create polygonal approximation using minimum-Perimeter polygon.

AR 13 **Set-02**

Code No:13MPE1009

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT TEKKALI
(AUTONOMOUS)

I M.Tech II Semester Regular / Supplementary Examination, August-2015
SWITCHED MODE POWER CONVERTERS
(Power Electronics and Electric Drives)

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

Answer any FIVE questions
All questions carry EQUAL marks

1. With the help of circuit diagram and wave forms explain the working of Fly back converter under continuous mode of operation? 12M

2. Explain the power circuit analysis of push pull converter? 12M

3. (a) Develop circuit model for buck and boost converter? 6M
   (b) What is the need for small signal models and draw the small signal circuits for boost converter? 6M

4. (a) Explain the operation of half bridge converter with steady state waveforms in continuous mode? 10M
   (b) compare the merits and demerits of half and full bridge converters. 2M

5. Discuss the functioning of P&PI controllers with necessary diagrams and state how they are used to meet the specifications for the given system? 12M

6. (a) What are the different types of resonant converters and Explain resonant power conversion in any converter? 6M
   (b) Explain working of series resonant converter using neat circuit diagram and waveforms? 6M

7. Explain various modes of operation of L-type Zero voltage switching resonant converter with neat circuit? 12M

8. Explain the different modes of operation of M-type ZCS resonant converter? 12M

AR13 SET-1

Code No: 13MCS1007

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

DATA WAREHOUSING AND DATA MINING
(Computer Science and Engineering)

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

Answer any FIVE questions
All questions carry equal marks

1		What is multidimensional data model? Explain in detail about schemas used in data warehouse design	[12M]
2	a)	What is KDD? Explain its concept	[6M]
	b)	Discuss about various data mining functionalities	[6M]
3	a)	Why the preprocessing is needed? Explain about data cleansing and transformation methods	[8M]
	b)	Differentiate OLAP and OLTP.	[4M]
4	a)	Define Association rule. Explain how to generate frequent item sets using Apriori algorithm.	[6M]
	b)	Explain multi-level and multidimensional association rule mining	[6M]
5	a)	Compare and contrast classification and prediction	[4M]
	b)	State Bayes theorem. Explain Naïve Bayesian classification with suitable example.	[8M]
6	a)	Discuss about different types of data used in cluster analysis.	[6M]
	b)	Write and explain K-means clustering algorithm.	[6M]
7	a)	Explain DBSCAN clustering technique.	[6M]
	b)	Briefly discuss about data mining applications.	[6M]
8		Write short notes on	
	i)	Support Vector Machine.	[4M]
	ii)	Back propagation.	[4M]
	iii)	Classifier accuracy	[4M]

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