AR16 **Set-02**

Code: 16MTE 1014

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I M.Tech II Semester Regular & Supplementary Examinations, August-2018
COMPUTATIONAL FLUID DYNAMICS
(Thermal Engineering)

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

Answer any FIVE questions
All questions carry equal marks

1.	(a)	How do you classify linear PDE's. Name the different discretization schemes, numerical grids and that are used to solve parabolic equations.	4M
	(b)	Solve the following equations using Gauss – Siedel iterative method. $4x_1+8x_2+3x_3 = 15$ $7x_1+5x_2+x_3 = 13$ $x_1+3x_2+10x_3 = 14$	8M
2.	(a)	Write in detail about difference among finite difference method, finite volume method and finite element method.	6M
	(b)	Explain the impact of computational fluid dynamics and its application in automobiles, Industrial Manufacturing, Civil Engineering	6M
3.	(a)	Derive the expression for the stability criterion for the finite difference solution of the one dimensional steady state heat conduction.	6M
	(b)	Compare all the three different types of implicit, explicit and Crank Nicholson schemes of solving unsteady state conduction problems	6M
4.		Derive Finite difference formulae for first order and second order partial difference terms using Taylor's series o approximation	12M
5.	(a)	Explain the approximations in the discretization Techniques in finite volume method.	6M
	(b)	Consider a square slab of side, L. The right, left and bottom surfaces of the slab are kept at 100^0C, while the top surface is kept at 500^0C. The thermal conductivity of the slab is 2 W/mK. Taking the mesh size as L/3, Obtain the finite difference temperature distribution of slab.	6M
6.		Solve Momentum equation with pressure coupling using Vorticity & Stream Function formulation with SIMPLER (revised algorithm) Algorithm.	12M
7.	(a)	What are different schemes of interpolation used in the discretization of 1D Convection – Diffusion problem. Write about Central Difference Schemes in detail and prepare them.	6M
	(b)	Discuss in detail about Turbulence models of Large Eddy Simulation and RANS Models	6M
8.		Write short notes on any two of the following:	12M
	(a)	Governing Equations for flow and heat transfer problems?	
	(b)	What are different methods to evaluate matrix inverse for the solution of simultaneous algebraic equations? Compare them.	
	(c)	Pressure and Velocity coupling of Compressible flow problems	

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CODE: 16MPE1012 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I M.Tech II Semester Regular & Supplementary Examinations, August-2018
ADVANCED DIGITAL SIGNAL PROCESSING AND ITS APPLICATIONS
(PED)

Time: 3 Hours Max Marks: 60

Answer any FIVE questions
All questions carry EQUAL marks

1.	(a)	What are the basic elements of digital signal processing system and explain the importance of each element of it.	6M
	(b)	Find the DFT of the sequence x[n] = {1,2,3,1,3,4,1,4} using decimation in time algorithm.	6M
2.	(a)	Explain the frequency domain description of a Decimator.	6M
	(b)	Explain the design procedure for IIR filters using Chebyshev and Butterworth approximations	6M
3.	(a)	Compare IIR & FIR Digital Filters	4M
	(b)	Obtain the Cascade form realization of the linear time invariant system governed by the equation y (n) = $\frac{-3}{8}y(n-1)+\frac{3}{32}y(n-2)+\frac{1}{64}y(n-3)+x(n)+3x(n-1)+2x(n-2)$	8M
4.	(a)	Derive the design of low pass & High pass IIR Digital filters	6M
	(b)	Explain Quantization in sampling analog signals	6M
5.	(a)	Explain effects of coefficients on Quantization with an example	6M
	(b)	Explain design of Minimum phase FIR filters with an example	6M
6.		Draw and explain architecture of TMS320LF 2407A DSP controller.	12M
7.	(a)	Explain PWM Waveform Generation With Compare Units	6M
	(b)	Explain Quadrature Encoder Pulse (QEP) Circuit with a neat diagram	6M
8.		Explain	
	(a)	Peripherals & Interrupts of Event Manager	6M
	(b)	Derive Interpolation with an example	6M

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CODE: 16MVL1012 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I M.Tech II Semester Regular & Supplementary Examinations, August-2018
DESIGN OF FAULT TOLERANT SYSTEMS
(VLSI System Design)

Time: 3 Hours Max Marks: 60

Answer any FIVE questions
All questions carry EQUAL marks

1.	(a)	Summarize about Reliability, Fault, Failure Rate, MTB	6M
	(b)	Derive the relationship between reliability and MTBF	6M
2.	(a)	Evaluate the series and parallel systems in combinational circuits.	6M
	(b)	Evaluate the parallel-series system combination in combinational circuits.	6M
3.	(a)	Explain the use of error correcting codes?	6M
	(b)	With a neat diagram explain the principle of operation of Sift out Modular Redundancy (SMR). Give its merits and demerits?	6M
4.	(a)	Outline the Static, dynamic, hybrid redundancy techniques with suitable example?	6M
	(b)	Discuss the basic concept of self checking design with example?	6M
5.	(a)	Explain totally self-checking checker for low-cost residue code?	6M
	(b)	Design a totally self checking checker using Berger code?	6M
6.	(a)	Discuss the concept of Reed Muller's expansion technique.	6M
	(b)	Outline the basic concept of Testability, Controllability and Observability?	6M
7.	(a)	Discuss about Scan Path Techniques?	6M
	(b)	Explain about fail-safe design of sequential circuits using Berger code?	6M
8.	(a)	Summarize the Test Pattern Generations for BIST?	6M
	(b)	Develop test generation mechanism for BIST using combined LFSR/SR and LFSR/XOR approach?	6M

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CODE: 16MCS1013 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I M.Tech II Semester Regular & Supplementary Examinations, August-2018
WEB TECHNOLOGIES
Computer Science and Engineering

Time: 3 Hours Max Marks:60

Answer any FIVE questions
All questions carry EQUAL marks

1.	(a)	What are the different types of lists in HTML? Explain how these lists are created in HTML with suitable examples	[6M]
	(b)	List and explain various HTML tags with examples and usage.	[6M]
2.	(a)	What is DTD Schema definition? Give an example.	[6M]
	(b)	Explain the XML DOM Parser.	[6M]
3.	(a)	Explain the functionality of javax.servlet.http package by discussing about the methods and interfaces of this package	[6M]
	(b)	What is Servlet? Explain Life cycle of Servlet. Illustrate with an example program	[6M]
4.	(a)	Write about JSP implicit objects	[6M]
	(b)	Explain MVC architecture.(JSP Model2).	[6M]
5.	(a)	Explain the methods execute Query, execute Update and execute	[6M]
	(b)	Explain database connectivity using JDBC with an example?	[6M]
6.		Explain in detail about spring frame work.	[12M]
7.	(a)	Write a note on Custom-tag libraries in JSP.	[6M]
	(b)	Explain about Frames in HTML with examples.	[6M]
8.	(a)	Explain different methods for session tracking using Java Servlet.	[6M]
	(b)	Explain about security issues in Java Servlet.	[6M]

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16MSE1014 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I M.Tech II Semester Regular & Supplementary Examinations, August-2018

STRUCTURAL DYNAMICS AND EARTHQUAKE RESISTANT DESIGN
(STRUCTURAL ENGINEERING)

Time: 3 Hours Max Marks:60

Answer any FIVE questions
All questions carry EQUAL marks

1. a. What do you understand by Intensity of earthquake? Explain briefly different types of scales used to measure the intensity of earthquake. 6 M
   b. Define earthquake size and write detailed classification of earthquakes. 6 M

2. Derive expression for the free vibration response of damped SDOF structural system & differentiate the response with that of free un-damped response. 12 M

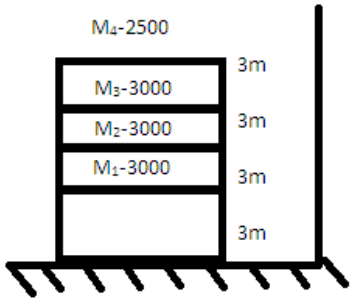
3. Determine the natural frequencies of vibration and corresponding mode shapes for a three storied building having lumped floor masses and storey stiffnesses (Top to Bottom) as follows: 12 M

   m_1 = 0.47 kN sec^2/mm; m_2= 0.39 kN sec^2/mm; m_3= 0.44 kN sec^2/mm
   k_1= 89 kN / mm; k_2= 185 kN / mm; k_3= 215 kN / mm

4. Derive the equation for single degree of freedom system for a damped system. Hence draw the curve for displacement versus time for an over damped system. 12 M

5. Describe the Holzer's numerical technique for determining natural periods of vibration for multi degree freedom system. 12 M

6. A four story RC building is shown in figure below. The height between the floors is 3m and total height of the building is 12m. The dead load (kN) and normal live loads (kN) are lumped at the respective floors. The soil below the foundation is assumed to be hard rock. Assume the building to be used as a hospital. Determine the total base shear and distribute the base shear along the height of the building. Let the building be located in zone IV. 12 M



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16MSE1014 **SET-2**

7.	a.	What is a seismic code? How do they help us in designing structures?	6 M
	b.	Distinguish between seismic coefficient and response spectrum methods.	6 M
8.		Explain the principles to be observed in construction of earthquake resistant buildings as per IS 13920-1993.	12 M

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