GUJARAT TECHNOLOGICAL UNIVERSITY M. E. - SEMESTER – II • EXAMINATION – WINTER 2012

Subject code: 1723906Date: 02-01-2013Subject Name: Computational Fluid DynamicsTotal Marks: 70			1-2013	
			70	
Insti	ructi	ons:		
	1.	Attempt all questions.		
	2.	Make suitable assumptions wherever necessary.		
	3.	Figures to the right indicate full marks.		
Q.1	(a)	Derive wave equation for fluid flow. Explain its application in CFD.	07	
	(b)	Describe the basic steps for solving the problem with FEM.	07	
Q.2	(a)	What are the different types of boundary condition used CFD analysis.	07	
	(b)	Derive an expression for energy equation for small, moving fluid element. OR	07	
	(b)	Derive the basic iteration matrix for two grid process. How the basic iteration matrix for three grid process is found.	07	
Q.3	(a)	Explain Car-Reacting flow in a gas burner.	07	
	(b)	Explain simple internal flow through driven cavity OR	07	
Q.3	(a)	Explain simple internal flow through T-Junction	07	
	(b)	Explain multi-phase flow in an air lift reactor.	07	
Q.4	(a)	Write short note on Reynolds-Averaged Navier-Stokes Equations	07	
	(b)	Write and explain governing equation for turbulant flow. OR	07	
Q.4	(a)	Write and explain governing equation for combusting flow.	07	
	(b)	Write short note on general standard used for data exchange	07	
Q.5	(a)	Explain C-Grid topology with suitable example	07	
	(b)	Explain Delaunay Triangulation.	07	
05	(a)	UK Explain O-grid topology and H-grid topology	07	
V -2	(a) (b)	Explain Transfinite Interpolation for volume grid generation	07 07	
