Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER– II (Old course)• REMEDIAL EXAMINATION – SUMMER 2015

Subject Code: 1723906 **Date:15/05/2015**

Subject Name: Computational Fluid Dynamics

Time: 02:30 pm to 5:00 pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Justify CFD is a research tool. Write and explain the steps involved in CFD process.	**07**
	(b)	Write short note on Finite volume method	**07**
Q.2	**(a)**	Derive an expression for energy equation for small, moving fluid element.	**07**
	(b)	Discuss different types of boundary condition necessary for solving the problem of CFD.	**07**
		OR	
	(b)	Derive wave equation for fluid flow. Explain its application in CFD.	**07**
Q.3	**(a)**	Explain Euler/Euler approach and Euler/Lagrange approach for multiphase flow.	**07**
	(b)	Discuss the effects of external turbulent flow over Ahmed body.	**07**
		OR	
Q.3	**(a)**	Explain Delaunay Triangulation.	**07**
	(b)	Write short note on general standard used for data exchange	**07**
Q.4	**(a)**	Write short note on head loss in flow through T- junction.	**07**
	(b)	Write and explain governing equation for turbulent flow.	**07**
		OR	
Q.4	**(a)**	Discuss the benefits of un-structured mesh with example.	**07**
Q.4	**(b)**	Write short note on Reynolds-Averaged Navier-Stokes Equations	**07**
Q.5	**(a)**	Explain Car-Reacting flow in a gas burner.	**07**
	(b)	Differentiate clearly between O-Grid topology and J-Grid topology with suitable example	**07**
		OR	
Q.5	**(a)**	Explain Transfinite Interpolation for volume grid generation	**07**
	(b)	Explain C-Grid topology with suitable example	**07**

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