Total No. of Questions – [06] Total No. of Printed Pages: [01]

PRN No.	

Paper Code	U482-261B(ESE)

MAY 2022 - ENDSEM EXAM

B. TECH. (MECHANICAL) (SEMESTER - II)

COURSE NAME: COMPUTATIONAL FLUID DYNAMICS

COURSE CODE: MEUA40181B

(PATTERN 2018)

Time: [1 Hr] [Max. Marks: 30]

Instructions to candidates:

1) **Answer Q.1 OR Q.2, Q.3 OR Q.4, Q.5 OR Q.6.**
2) **Figures to the right indicate full marks.**
3) **Use of scientific calculator is allowed**
4) **Use suitable data wherever required**

Q.1	a	Write vorticity, stream function equations, and demonstrate each term.	[4]
	b	Formulate vorticity-stream function equations using FDM.	[6]
		OR	
Q.2	a	Contrast between staggered and Non-Staggered grid.	[4]
	b	Discretize Navier-Stokes Equations using FDM (MAC Algorithm).	[6]
Q.3	a	Interpret Finite Volume Method in brief.	[4]
	b	Formulate steady diffusion equation using FVM.	[6]
		OR	
Q.4	a	Contrast between FDM and FVM.	[4]
	b	Discretize unsteady diffusion equation using FVM.	[6]
Q.5	a	Interpret First order upwind scheme.	[4]
	b	Discretize Navier-Stokes Equations using FVM.	[6]
		OR	
Q.6	a	Interpret Central Difference Scheme.	[4]
	b	Interpret Boundary conditions for SIMPLE Algorithm using flow through pipe problem.	[6]