

Total No. of Questions – [06]

Total No. of Printed Pages: [01]

PRN No.	
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Paper Code	
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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

Question No.	Question Description	Marks	CO mapped	Blooms Taxonomy Level
Q.1 a	Write vorticity, stream function equations, and demonstrate each term.	4	4	3
Q.1 b	Formulate vorticity-stream function equations using FDM.	6	4	6
OR				
Q.2 a	Contrast between staggered and Non-Staggered grid.	4	4	4
Q.2 b	Discretize Navier-Stokes Equations using FDM (MAC Algorithm).	6	4	6
Q.3 a	Interpret Finite Volume Method in brief.	4	5	3

Q.3 b	Formulate steady diffusion equation using FVM.	6	5	6
OR				
Q.4 a	Contrast between FDM and FVM.	4	5	4
Q.4 b	Discretize unsteady diffusion equation using FVM.	6	5	6
Q.5 a	Interpret First order upwind scheme.	4	6	3
Q.5 b	Discretize Navier-Stokes Equations using FVM.	6	6	6
OR				
Q.6 a	Interpret Central Difference Scheme.	4	6	3
Q.6 b	Interpret Boundary conditions for SIMPLE Algorithm using flow through pipe problem.	6	6	3