Reg. No.									

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

SECOND SEMESTER M.TECH. (APPLIED COMPUTATIONAL FLUID DYNAMICS)

END SEMESTER EXAMINATIONS, MAY/JUNE 2024

FLUID STRUCUTRE INTERACTION [AAE 5405]

REVISED CREDIT SYSTEM

Time: 3 Hours **Date: 05/05/2023** **Max. Marks: 50**

Instructions to Candidates:

- Answer **ALL** the questions.
- Missing data may be suitably assumed.

Q.NO	Questions	Marks	CO	BTL
1A.	Explain the moving domain with an example of Piston-Cylinder example	5	CO1	3
1B.	What are all the dimensionless numbers relevant to FSI problems? Briefly describe them all	5	CO2	3
1C.	Elaborate on concept of small reduced velocity relevant to Fluid Structure Interaction problem	5	CO3	3
2A.	Elaborate on relevant boundary conditions used in Fluid Structure Interaction numerical models	5	CO2	3
2B.	Simulate the deflection of a thin, flexible structure kept in path of water flowing through a rectangular cross-section pipe. Assume dimensions and other relevant boundary conditions	15	C01 C02 C03 C04	4
2C	Simulate the effect of flow over a cylinder. Cylinder is supported horizontal by a compressive spring.	15	C01 C02 C03 C04	4