BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)

CLASS: IMSC   **SEMESTER: IV**
BRANCH: FOOD TECHNOLOGY   **SESSION: SP/2020**

SUBJECT: FT212 FLUID MECHANICS AND MECHANICAL OPERATIONS

TIME: 2 HOURS   **FULL MARKS: 25**

INSTRUCTIONS:
1. The total marks of the questions are 25.
2. Candidates may attempt for all 25 marks.
3. Before attempting the question paper, be sure that you have got the correct question paper.
4. The missing data, if any, may be assumed suitably.
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

		CO	BL
Q1 (a) What is the difference between mass density and weight density?	[2]	1	1
Q1 (b) Explain the major and minor losses in detail.	[3]	2	2
Q2 (a) What will be the value of Reynolds number for an ideal fluid?	[2]	1	1
Q2 (b) Briefly explain Moody's diagram for pipe friction.	[3]	2	2
Q3 (a) What is mass flow rate and volume flow rate? Write its units.	[2]	1	1
Q3 (b) Derive the Mechanical energy balance equation. Write the Bernoulli's equation applied between two sections with losses. Explain each term.	[3]	2	3
Q4 (a) What is an orifice meter?	[2]	1	2
Q4 (b) Explain the working principle of centrifugal pump with a neat sketch.	[3]	2	2
Q5 (a) Why is the angle of downstream small in venturimeter?	[2]	1	3
Q5 (b) Describe head capacity, power & efficiency curve of a centrifugal pump.	[3]	1	2

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