Enrolment No/Seat No.: _____

R.N.G.PATEL INSTITUTE OF TECHNOLOGY-RNGPIT

(An Autonomous Institute U/s UGC Act 1956)

B.Voc. SEMESTER-II, SEMESTER END EXAMINATION – WINTER 2025

SUBJECT CODE: 1IC204 **DATE: 12-01-2026**

SUBJECT NAME: UNIT OPERATIONS-1 (FLUID FLOW OPERATION AND MECHANICAL OPERATION)

TIME: 11:00 AM to 01:00 PM **TOTAL MARKS: 50**

Instructions

1. It is **compulsory** for students to write **Enrolment No. /Seat No.** on the question paper.
2. Attempt all questions in the question paper.
3. The figures to the right of each question indicate full marks. Make suitable assumptions with proper justification wherever required.
4. Simple, non-programmable scientific calculators are permitted.
5. BL - Cognitive Level (As per Revised Bloom's Taxonomy) (R-Remember, U-Understanding, A –Application, N –Analyze, E – Evaluate, C -Create), CO - Course Outcomes.

			Marks	BL	CO
Q.1	**(a)**	Discuss the importance of unit operations in the chemical industry.	**05**	**U**	**1**
	(b)	Discuss the category and structure for MSDS of chemicals.	**05**	**U**	**1**
Q.2	**(a)**	Define: Fluid, Density, Viscosity, Pressure and Reynolds number.	**05**	**R**	**2**
	(b)	Define steady state flow and unsteady state flow in detail.	**05**	**R**	**2**
		OR			
Q.2	**(a)**	List the industrial applications of fluid flow operations.	**05**	**R**	**2**
	(b)	List out the different types of fluid flow patterns in detail.	**05**	**R**	**2**
Q.3	**(a)**	Define valve and classify it in detail.	**05**	**R**	**3**
	(b)	Define pump and classify it in detail.	**05**	**R**	**3**
		OR			
Q.3	**(a)**	List out different types of flow measuring devices.	**05**	**R**	**3**
	(b)	List the difference between pipe and tube.	**05**	**R**	**3**

Q.4	**(a)**	Explain screening, ideal and actual screens in detail.	**05**	**U**	**4**
	(b)	Explain the importance of mechanical operations in industries.	**05**	**U**	**4**

OR

Q.4	**(a)**	Discuss the concepts of mixing and agitation in detail.	**05**	**U**	**4**
	(b)	Discuss the properties and handling of particulate solids.	**05**	**U**	**4**
Q.5	**(a)**	Explain the working of ball mill with a neat sketch.	**05**	**U**	**5**
	(b)	Demonstrate the objective of jaw crusher with a neat sketch.	**05**	**A**	**5**

OR

Q.5	**(a)**	Explain the concept of filtration and sedimentation in detail.	**05**	**U**	**5**
	(b)	Demonstrate the objective of cyclone separator with a neat sketch.	**05**	**A**	**5**

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