

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

CLASS: B.Arch
BRANCH: Architecture

SEMESTER : V
SESSION : MO/2025

SUBJECT: AR302 BUILDING SERVICES-III (MECH. & FIRE SAFETY)
TIME: 02 Hours

FULL MARKS: 25

INSTRUCTIONS:

1. The question paper contains 5 questions each of 5 marks and total 25 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates

		CO	BL
Q1	If there are 50 persons working in a hall of a workshop having a volume of 500 cubic meters, what will be the ventilation intensity to achieve the desirable minimum rate of fresh air flow of 25 cubic meters per person?	[5] 5	3
Q2 (a)	Explain case of dew formation on cold surfaces, by using concept of relative and saturation humidity.	[2] 2	4
Q2 (b)	Differentiate between unidirectional displacement ventilation and displacement ventilation with the help of neat sketches. Also, discuss the spaces where they will be preferred in operation.	[3] 1	2,5
Q3	Explain Refrigeration Cycle with the help of neat sketches. Also, discuss its role in heat transfer from one space to another.	[5] 2	4
Q4	Explain process of Summer and winter air conditioning with the help of neat sketch.	[5] 5	2,4
Q5	Draw the Psychrometric chart to show the process of sensible heating and latent heating on the Psychrometric table.	[5] 1	3

:::22/09/2025 :::M