

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

**CLASS: B.ARCH
BRANCH: ARCHITECTURE**

**SEMESTER: 5th
SESSION: MO/2022**

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

TIME: 2 HOURS

FULL MARKS: 25

INSTRUCTIONS:

1. The total marks of the questions are 25.
 2. Candidates 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.
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		CO	BL
Q1 (a)	State various benefits derived due to utilization of mechanical ventilations system	[2] 1	3
Q1 (b)	Describe concept of Air changes per hour. Compare case of a bakery and church to predict their possible Air change per hour requirements.	[3] 2	2,3
Q2 (a)	How does mechanical ventilation affect the global environment?	[2] 1	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] 2	2,5
Q3 (a)	Refrigeration Cycle is used to transfer the heat from one space to another, explain?	[2] 2	4
Q3 (b)	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 desirable minimum rate of fresh air flow of 25 cubic meters per person.	[3] 5	3
Q4 (a)	With the help of psychrometric table, explain the process of dew formation on the outside of the glass filled with cold water. (Hint: you may draw a hypothetical psychrometric chart and show the psychrometric process on it.)	[5] 5	2,4
Q5 (a)	Discuss layout of Fan coil system with the help of neat sketches and describe condition of its utilization.	[2] 1	1,3
Q5 (b)	Draw neat sketches to illustrate principal terms of heat gain and losses. Categorize each one of them in sensible and latent component.	[3] 2	1,2

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