

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

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

**SEMESTER: VI
SESSION : SP/2020**

SUBJECT : AR6301 BUILDING SERVICES - IV (MECH. SERVICES)

TIME: 1.5 HOURS

FULL MARKS: 25

INSTRUCTIONS:

1. The total marks of the questions are 30.
 2. Candidates may attempt for all 30 marks.
 3. In those cases where the marks obtained exceed 25 marks, the excess will be ignored.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. The missing data, if any, may be assumed suitably.
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- Q1 (a) Differentiate between mechanical and natural ventilation. [2]
(b) State functioning of supply air-conditioning system and describe its applicability in various climatic zones. [3]
- Q2 (a) Describe various mechanical ventilation systems as per pressure conditions of their operation space. [2]
(b) Discuss the impact of mechanical ventilation system on global climate. [3]
- Q3 (a) Compare modular and compact units of AHU. [2]
(b) Discuss layout of basic central system with the help of neat sketches. [3]
- Q4 (a) Draw neat sketches to illustrate principal terms of heat gain and losses. [2]
(b) Space heat gain is not equal to cooling load. Explain. [3]
- Q5 (a) Define space heat gain and differentiate between sensible and latent heat gain. [2]
(b) Write short notes on: [3]
- Time delay effect for lighting (in case of cooling loads)
 - Air space per person
- Q6 (a) Describe concept of Air changes per hour. Compare case of a bakery and church to predict their possible Air change per hour requirements. [2]
(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]

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