

MASTER OF ARCHITECTURE (SUSTAINABLE ARCHITECTURE) (CBCS -
2018 COURSE) M. Arch. (S.A.) Semester-III : WINTER - 2021

SUBJECT: ENERGY CONSERVATION-III
(ACOUSTICS & AQUEOUS ENVIRONMENT)

Day: Wednesday

Time: 10:00 AM-12:30 PM

Date: 22-12-2021

W-19812-2021

Max. Marks: 60

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Both the sections should be written in **SEPARATE** answer books.
- 3) Figures to the **RIGHT** indicate full marks.
- 4) Assume suitable data and draw figures if necessary.

SECTION-I

- Q.1** Write short notes on: (**Any two**) (10)
- a) Wavelength and amplitude
 - b) Sound and echo
 - c) Creep and focusing
- Q2.** Describe the following terms in detail: (**Any two**) (10)
- a) Barrier Mass
 - b) Stiffness and Resonance
 - c) Sound Isolation
- Q.3** Answer the following: (**Any one**) (10)
- a) An auditorium of 450 seating capacity needs to acoustically designed for drama. Describe constraints, procedures and strategies to be followed for schematic design. Calculate room absorbance, RT and STC rating.
 - b) Discuss various mechanical systems of Noise control for a school on a busy road.

SECTION-II

- Q.4** Write short notes on : (**Any two**) (10)
- a) Guidelines for waste minimization in residential buildings.
 - b) Centralized and decentralized methods of waste water treatment and recycling.
 - c) Water conservation and solid waste recycling strategies at all scales in building design.
- Q.5** Describe the following in detail: (**Any two**) (10)
- a) Types of artificial recharge systems in urban and rural areas.
 - b) Solar hot water systems – types and its application.
 - c) Water treatment systems at all scales.
- Q.6** Answer the following: (**Any one**) (10)
- a) Explain types of rain water harvesting and components of rooftop rainwater harvesting system with their benefits and sketches. Calculate the rainwater harvested for a site of 1000 sq.m. having a roof area of 200 sq.m. , 30% of site is paved and 50% is vegetated. Assume the city, annual rainfall and appropriate run off potentials.
 - b) Propose an integrated water management plan and discuss water conservation and recycling strategies for midrise residential apartments.

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