

# CBCS SCHEME

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21ARC65

## Sixth Semester B.Arch. Degree Examination, June/July 2024 Building Services – IV (Acoustics & Noise Control)

Time: 3 hrs.

Max. Marks: 100

*Note: Answer any FIVE full questions, choosing ONE full question from each module.*

### Module-1

- 1 a. Elaborate on the characteristic and measurement of sound with supporting diagram. (08 Marks)  
b. Explain the various acoustical defects possible in enclosed spaces with its causes and remedies. (12 Marks)

OR

- 2 a. Explain reflection of sound and nature of reflection over plane; concave and convex surface. (08 Marks)  
b. What is sound reverberation and reverberation time? Explain how is Sabine's formula relevant in this connection. (12 Marks)

### Module-2

- 3 a. Explain sound articulation index and speech intelligibility relating the two. (10 Marks)  
b. Explain the function of a sound level meter with a sketch and labeling its parts. (10 Marks)

OR

- 4 Discuss about the acoustical material which will enhance the existing spaces. (20 Marks)

### Module-3

- 5 Elaborate on the design considerations for a lecture theatre versus the auditorium meant for orchestra with support of sketches. (20 Marks)

OR

- 6 a. Discuss history of Greek and Roman theaters. (08 Marks)  
b. Elaborate on design recommendation by an architect for OAT on following points :  
i) Space geometry and visibility  
ii) Measures to be taken to maintain speech privacy and audibility  
iii) Sound reinforcement and sound masking suggestions. (12 Marks)

### Module-4

- 7 a. What is environmental noise control? (05 Marks)  
b. Explain mass law and design principles for reduction at and near source with sketches. (15 Marks)

OR

- 8 a. Explain airborne and structure borne noise with examples. (10 Marks)  
b. What are the ways of isolating noise from structure borne noise? Support with sketches. (10 Marks)

### Module-5

- 9 What are the various sources of industrial noise pollution? Explain any 5 causes. (20 Marks)

OR

- 10 Elaborate on the role of architects and urban planner in shaping the urban sound scape with sketches. (20 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and/or equations written eg, 42+8 = 50, will be treated as malpractice.