

# CBCS SCHEME



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15ARC73

## Seventh Semester B.Arch. Degree Examination, July/August 2021 Building Services – IV

Time: 3 hrs.

Max. Marks:100

**Note: 1. Answer any FIVE full questions.  
2. Draw relevant sketches wherever necessary.**

- 1 a. Briefly describe origin and nature of sound. (04 Marks)  
b. Explain amplitude, wavelength and velocity of sound. (06 Marks)  
c. Define the terms 'sound intensity level', 'sound pressure level'. (04 Marks)  
d. What is frequency of sound? Briefly explain the auditory response of human ear. (06 Marks)
- 2 a. Explain behavior of sound in enclosed spaces with sketches. (10 Marks)  
b. Define the term 'R.T'. Explain its significance in acoustic design. (05 Marks)  
c. Comment upon the assumption, applications and limitations of 'inverse square law'. (05 Marks)
- 3 Explain various types of sound absorbing materials and their application in architecture. (20 Marks)
- 4 a. Explain briefly the terms "Noise Reduction Coefficient" and "NC" curves. (05 Marks)  
b. Explain uses of sound level meter. What is it comprised of? (05 Marks)  
c. What is speech intelligibility? Explain 'Articulation Index' and 'Speech – Transmission Index'. (10 Marks)
- 5 Explain considerations for Acoustic design of a multi-purpose auditorium with a neat sketch of plan and section for a capacity of 500 people. (20 Marks)
- 6 Explain how early Greeks and Romans built their amphitheaters with an example each. Discuss present day design considerations for open-air theatres. (20 Marks)
- 7 Explain air-borne and structure-borne noises. What are the measure taken to control it architecturally. (20 Marks)
- 8 a. Explain with sketches construction of floating floors. (05 Marks)  
b. Comment sketch on detailing walls, ceilings and wall openings such as doors and windows; towards minimizing impact of noise. (15 Marks)
- 9 a. Explain with sketches how one can mitigate noise originating from HVAC systems in buildings. (10 Marks)  
b. Explain methods of controlling industrial noise. (10 Marks)
- 10 Explain what is environmental noise? Explain the remedial measures to avoid noise. (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.