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Seventh Semester B.Arch. Degree Examination, Feb./Mar.2022 Building Services – IV

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. What is sound? Explain the term threshold of audibility and pain. (08 Marks)
b. With suitable example and values, explain inverse square law and relationship of sound intensity and sound timber. (12 Marks)

OR

- 2 a. Explain the terms: reverberation time and inverse square law. (08 Marks)
b. What are acoustical defects? Explain with neat sketches various acoustical defects and different measures to rectify it. (12 Marks)

Module-2

- 3 a. Explain the function of a sound level meter. How it is designed to record sound levels with respect to human hearing? (10 Marks)
b. Explain sound articulation index and speech intelligibility relating the two. (10 Marks)

OR

- 4 a. What are prefabricated acoustical units? State examples for the same and the advantages they offer. (10 Marks)
b. What is cavity or Helmholtz resonators? Explain in detail how can they be applied. (10 Marks)

Module-3

- 5 a. What are design considerations and constraints for an open air theatre? Discuss in detail the use of IS code 2526-1963 for the design and detailing of the same. (12 Marks)
b. Explain the need and use of sound reinforcement systems and sound marking systems in open plan office. (08 Marks)

OR

- 6 According to the IS code 2526-1963, explain the distribution of acoustic materials and the suggested absorbing materials. (20 Marks)

Module-4

- 7 a. Explain different types of noise transmission in the building. (08 Marks)
b. What are the various constructional measures of noise control and sound insulation for AC ducts and plants? (12 Marks)

OR

- 8 a. What is STC (Sound Transmission Class) ratings? Explain its application in designing an acoustical space. (08 Marks)
b. Explain various methods to mitigate noise in a mechanical industry. (12 Marks)

Module-5

- 9 a. What are the various sources of Industrial noise? (08 Marks)
b. Explain various methods to mitigate noise in a mechanical industry. (12 Marks)

OR

- 10 What are the necessary acoustical considerations for selecting a site for residential purpose? Discuss in detail the necessary site planning and design aspects if the residential building is situate along a busy street. (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.