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Following Paper ID and Roll No. to be filled in your Answer Book.

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# B. Arch. Examination 2021-22

## (Even Semester)

## BUILDING SERVICES - IV

## (Acoustics)

*Time : Three Hours]* *[Maximum Marks : 60*

**Note :–** (i) Attempt any five questions.

(ii) Question No. 1 is compulsory.

(iii) Assume any missing data.

1. (a) A classroom 20 mt × 15 mt × 5 mt has sound absorption coefficient of 0.3 for walls, 0.08 for ceiling and 06 for floor. Find the reverberation time of the class room with no occupants and no sound absorption treatment.

*[P. T. O.*

(b) Find the new reverberation time if 60% of the ceiling surface is treated with acoustical panels having absorption coefficient as 0.85.

2. Describe with neat sketches in detail the various considerations needed in the design of an auditorium.

3. What are the various constructional measures adopted for sound insulation of buildings? Support your answers with neat sketches.

4. Differentiate between any four of the following :

(a) Reverberation and formation of echoes

(b) Sound foci and dead spots

(c) Creep echo and flutter echo

(d) Air borne sound and structure borne sound

(e) Pure tone and complex sound

5. Explain any four of the following :

(a) Frequency of sound

(b) Wavelength of sound

(c) Threshold of pain

(d) Threshold of hearing

(e) Reverberation and reverberation time

6. What is absorbtion of sound? Discuss the properties of good acoustical materials.

7. What is sound? Discuss its properties in detail.

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