

Total number of printed pages – 4 **B. Arch**
PCAR 8207

Fourth Semester Examination – 2008

BUILDING SERVICES – II

Full Marks – 70

Time : 3 Hours

*Answer Question No. 1 which is compulsory
and any **five** from the rest.*

*The figures in the right-hand margin
indicate marks.*

1. Answer the following questions : 2 × 10

- (a) What do you understand by Audible Frequency Range ?
- (b) What do you understand by Noise Reduction Coefficient ?

(c) The intensity of a rock music group is $8.93 \times 10 \text{ W/ sq tm}$. Find the corresponding sound intensity level.

(d) What is flutter in accoustics ?

(e) What is sound power level ?

(f) What is a pure tone ?

(g) Define reverberation time.

(h) Define

(i) Wavelength

(ii) Noise.

(i) Differentiate between Presbycusis and Sociocusis.

(j) Discuss the velocity of sound in various medium.

2. Discuss the various acoustic considerations one should make while planning and designing auditoriums. 10

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3. Discuss how a residential building needs to be planned against outdoor and indoor noise. 10
4. A banquet hall 20mt × 8mt × 4.5 mt has sound absorption coefficients 0.20 for walls, 0.06 for ceiling and 0.10 for floor. All coefficients are at 500 Hz. Find Reverberation time T at 500 Hz at this space with no occupants and no sound absorbing treatments.
Find the reverberation time T if 50 percent of the ceiling surface is treated with acoustic panel and floor is treated with carpet. The coefficients of acoustic panel and carpets are 0.85 and 0.63 respectively at 500 Hz. 10
5. (a) Discuss the effect of adding sound absorbing treatment to rooms. 5
(b) Discuss the check list for effective absorption of sound. 5
6. A car horn outdoors produces a sound intensity level of 90 dB at 10 ft away. Find the intensity level at a location 90 ft. away. 10

7. Distinguish between : 2.5×4
(a) Pure Tone and Complex Sounds.
(b) Air borne sound and Structure Borne Sound.
(c) Sound Intensity and Sound Intensity level.
(d) Free field and Reverberant field.
8. (a) Discuss the impact of application of Sound-absorbing materials to rooms. 5
(b) Write a short note on 'Acoustical Blankets.' 5