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BARCH

(SEM VIII) THEORY EXAMINATION 2017-18

ACOUSTICS

Time: 3 Hours *Total Marks: 50*

Notes:

- Attempt **ANY FOUR** of the following. **Q.No.1 is Compulsory**.
- Assume missing data, wherever necessary.

Q.1. A Lecture hall of volume = 514 cu.mt is proposed to have acoustical corrections. It has seating capacity of 150 students. It is desired to achieve Reverberation Time of 0.82 seconds when 110 students are present. From the following data calculate the area of Acoustical Tiles (Absorption Coefficient = 0.50), which are proposed for acoustical corrections. **(20)**

S.No.	Material	Area in (sq.mt.)	Absorption Coefficient
1.	Carpet	60.0	0.30
2.	False Ceiling	90.0	0.04
3.	Doors	06.0	1.00
4.	Windows	13.0	0.50
5.	Empty Seat	--	0.22 per seat
6.	Occupied Seat	–	0.35 per seat

Q.2. A multipurpose hall, having circular plan with a hemispherical dome above, is proposed to be constructed for holding various functions. It is expected to have the capacity of 200 persons. You being the consultant are expected to give your recommendations, in detail, for acoustical design of the hall. Support your answer with neat illustrations (sections and plans). **(10)**

Q.3. Write short notes on **any two** of the following: **(10)**

a) Effect of noise on humans.
b) Variety of microphones.
c) Importance of plantation in reduction of outdoor noise.
d) Various requirements of good acoustical materials.

Q.4. What is Sound Insulation? Discuss about the merits of the following varieties of sound insulation materials: **(10)**

a) Non-porous rigid.
b) Porous rigid.
c) Flexible porous.

Q.5. What is Reflection of Sound? Discuss the manner in which the sound is reflected from flat, convex and concave surfaces. Support your answer with neat illustrations. **(10)**

Q.6. Differentiate between **any Two** the following. Support your answer with neat illustrations: **(10)**

a) Outdoor and Indoor noise
b) Echo and Reverberation
c) Heavy weight and light weight construction
d) Direct and Indirect Transmission.