Printed Pages : 3

AR805

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

PAPER ID : 181805

Roll No.

B. Arch.

(SEM. VIII) THEORY EXAMINATION, 2014-15

ACOUSTICS

Time : **3** Hours] [Total Marks : **50**

Notes : (1) Answer any five questions.

(2) Question No. 1 is compulsory.

(3) All questions carry equal marks.

1. A Lecture hall of volume = 540 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 = 0.30), which are proposed for acoustical corrections (without deducting the available absorption).

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S. No.	Material	Area in (sq.mt.)	Absorption coefficient
1.	Carpet	70.0	0.30
2.	False Ceiling	100.0	0.04
3.	Doors	15.0	1.00
4.	Windows	13.0	0.50
5.	Empty Seat	-	0.22 per seat
6.	Occupied Seat	-	0.35 per seat

2. A multipurpose hall, having wedge/fan shape, is proposed to be constructed in an engineering institute for holding cultural programmes, seminars, lectures, indoor games etc. It is expected to have the capacity of 500 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 & plans).

3. Write short notes on any four the following :
   a. Importance of plantation in reduction of outdoor noise.
   b. Sabine's expression for Reverberation Time.
   c. Importance of flooring in a library.
   d. Role of noise survey of site for any project.
   e. Hollow wall construction.
   f. Variety of Microphones.

4. What is the acceptable indoor noise level for a machine shop of an Industrial building or Sound Recording Studio? Identify the sources of outdoor as well as indoor noise. Suggest various precautions, which you shall take while designing it.

5. Explain the manner in which sound is reflected from various types of surfaces in an enclosure. Discuss its importance while acoustical design of various projects. Support your answer with neat illustrations.

6. What are the various principles/factors involved in acoustical design of an auditorium? Discuss in detail and support your answer with neat illustrations.

7. What are the various constructional measures adopted for sound insulation of buildings? Support your answer with neat illustrations.
