Printed Pages: 4 **AR-805**

(Following Paper ID and Roll No. to be filled in your Answer Books)	
Paper ID : 181805	**Roll No.**

B. Arch.

Theory Examination (Semester-VIII) 2015-16

ACOUSTICS

Time : 3 Hours ***Max. Marks : 100***

Section-A

Q1. Attempt all parts. All parts carry equal marks. Write answer of each part in short and support it with neat illustrations. (2×10=20)

a. What is Acoustics?

b. What is Noise? Mention its types.

c. Explain Sound shadow.

d. Enumerate various types of Porous materials used as absorbents.

e. How Generation and Propagation of sound takes place?

f. Enlist various mediums in which sound travels.

g. Enlist various types of Microphones.

h. Describe Absorption coefficient.

i. What is Frequency and its unit; mention the range of Infrasonic, Audible and Ultrasonic frequencies?

j. What is the relationship between Frequency and Time period?

Section-B

Q2. Attempt any five Parts from this section. Support it with neat free hand sketches. (10×05=50)

(a) Explain the manner in which sound is reflected from various types of surfaces in an enclosure. Support your answer with neat illustrations.

(b) Write short notes on the role of noise survey for the site for any project.

(c) Differentiate between Echo and Reverberation of sound. Support your answer with neat illustrations.

(d) What is Public Address System? Discuss at least two types of Speakers.

(e) Mention various acoustical defects in an enclosure and their remedial measures.

(f) Enumerate various principles and factors in acoustical design of a conference room.

(g) What is Reverberation? Mention the Sabine's expression for reverberation time. Also, prepare a chart showing optimum reverberation time for various buildings.

(h) What is Sound Insulation? Discuss about the merits of the Flexible porous type of sound insulation materials.

Section-C

Attempt any two questions from this section. Support it with neat illustrations (15×02=30)

Q3. A Multipurpose hall has a volume of 2850 cu.mt and a seating capacity of 400 persons. From the following data calculate the Reverberation Time when 200 persons are present.

S. No.	Material	Area in (sq.mt.)	Absorption Coefficient
1.	Floor Tiles	300.0	0.02
2.	Doors	020.0	1.00

3.	Windows	030.0	0.75
4.	Cement Plaster	200.0	0.04
5.	False Ceiling	200.0	0.05
6.	Wall Panelling	352.0	0.70
7.	Empty Seat	-	0.09 per seat
8.	Occupied Seat	-	0.32 per seat

Q4. What is the acceptable indoor noise level for an Intensive care unit of a hospital? Identify the sources of outdoor as well as indoor noise. Suggest various precautions, which you shall take while designing it.

Q5. 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).