Printed Pages: 4 **NAR-406**

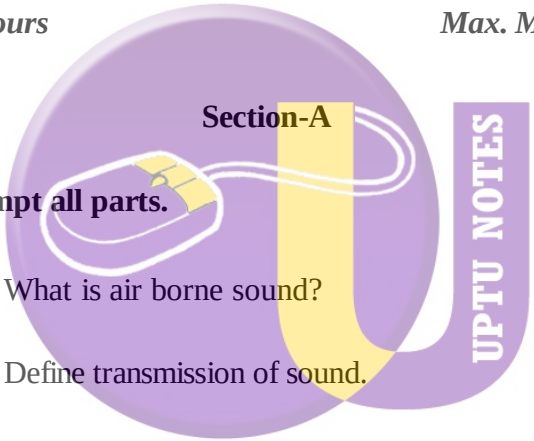
(Following Paper ID and Roll No. to be filled in your Answer Books)	
Paper ID : 181419	**Roll No.**

B. Arch.

Theory Examination (Semester-IV) 2015-16

ARCHITECTURAL SERVICE-III

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



Section-A

Q1. Attempt all parts. (2×10=20)

(a) What is air borne sound?

(b) Define transmission of sound.

(c) List down any four natural sound absorbents.

(d) What is sound insulation of building?

(e) Name any four materials which have maximum sound reflection.

(f) What is echo?

(g) What is noise pollution? Mention any two sources of noise pollution.

(h) Define sound shadows.

(i) Write any two properties of good acoustical material.

(j) Define amplifiers.

Section-B

Q2. Attempt any five parts from the followings: (10×5=50)

(a) Write short note on any two of the following. Support your answer with neat sketches?

(i) Hollow wall construction.

(ii) Non rigid or flexible porous materials.

(iii) Treatment of interior surfaces.

(b) What is Reverberation time? Discuss Sabine's expression to calculate it. Also write down the optimum reverberation time for any four types of buildings?

(c) List down any four acoustical treatments for the reduction of sound in the indoor spaces of the office building. Support your answer with neat illustrations.

(d) Suggest any four measures to overcome high traffic noise levels in urban areas. Support your answer with neat illustrations.

(e) What is public address system? Discuss any three public address equipments in detail.

(f) Mention any three different methods of sound insulation of floors. Support your answer with neat sketches.

(g) Differentiate between any two of the following :-

(i) Transmission of air borne and structure borne sounds

(ii) Sound and Noise

(iii) Microphone and Speaker

(h) What are the common acoustical defects in a conference hall? Discuss the causes of various defects in detail with the help of the sketches.

Section-C (Attempt any two Question)

(15×2=30)

Q3. Suggest the various acoustical design principles involved in designing of an auditorium? Discuss in detail with the help of the sketches.

Q4. A Multipurpose hall has a volume of 2850 cu.mt and a sitting capacity of 400 people. From the following data calculate the reverberation time when 200 people are present.

S.No	Materials	Area in (sq.mt)	Absorption Coefficient
1.	Floor Tiles	300.0	0.02
2.	Doors	020.0	1.00
3.	False Ceiling	200.0	0.05
4.	Windows	030.0	0.75
5.	Cement Plaster	200.0	0.04
6.	Walling Panelling	352.0	0.70
7.	Empty seat		0.09 per seat
8.	Occupied Seat		0.32 per seat

Q5. Design a generator room for generator size (2.4X1.5X1.8)M while keeping in mind Acoustical design principals like dimensions, shape, materials, openings, treatment of interior surfaces etc. Illustrate your answer with the help of plan, section and detail of wall and ceiling.