Reg.No.									

INTERNATIONAL CENTRE FOR APPLIED SCIENCES

(Manipal University)

FOURTH SEMESTER B.S. DEGREE EXAMINATION – APRIL/ MAY 2017

SUBJECT: ENVIRONMENTAL TECHNOLOGY - II (AE 242)

(BRANCH: ARCHITECURE)

Tuesday, 2 May 2017

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

- ✓ **Answer ANY FIVE full Questions.**
- ✓ **Missing data, if any, may be suitably assumed.**
- ✓ **Support with sketches wherever necessary.**

1. Write the following in detail
   i) Sound reflection
   ii) Sound Absorption
   iii) Sound Diffusion
   iv) Sound transmission **(5x4)**

2. Explain any four sound defects that occur in interior spaces due to shape. **(5x4)**

3. What are the important points to be considered while designing open air theatres? **(20)**

4. Explain the acoustical design of a recording studio. **(20)**

5. Explain any 5 important acoustical consideration in the design of an auditorium without amplification. **(20)**

6. Explain sound insulation techniques that can be given to floor, wall and ceiling of a building. **(20)**

7. Explain 'incandescent lamps' and 'electric discharge lamps'. **(10+10)**

8. The length, breadth and height of an auditorium which is rectangular in shape are 35m, 25m & 9m respectively. The internal areas of different surfaces and absorption coefficients are Cement Plaster – 800 m^2 (α -0.02), Concrete Floor - 700 m^2 (α – 0.03), Timber Floor – 200 m^2 (α -0.09) and Suspended POP Ceiling – 600 m^2 (α – 0.05). The capacity of auditorium is 1050 seats. Absorption power of one upholstered chair is 0.16 m^2 –sabins. The absorption power per person can be taken as 0.46 m^2 –sabins. (All the values given are at 550Hz.). Find the reverberation time if there are 2/3rd audience. **(20)**