

9

**FEDERAL UNIVERSITY OF TECHNOLOGY, OWERRI**  
**SCHOOL OF ENVIRONMENTAL TECHNOLOGY**  
**DEPARTMENT OF ARCHITECTURE**  
**Harmattan Semester Examination 2014/2015 Session**  
**Arc. 415: Environmental Control II (2 Units)**

**Introductions: Answer Question 1 & 2 with any other 3. Time 2 hours**

**Question (1)**

- A. Explain the terms
  - i. Noise ii. Built Environment iii. TTS iv. PTS
- B. Briefly discuss the causes of Noise and its effects on man.
- C. Explain the following effects of Noise on the environment and also proffer a solution to each.
  - i. Distance effect ii. Atmospheric effect iii. Wind effects iv. Temperature effects
  - v. Precipitation vi. Terrain & vegetation **(25 marks)**

**Question (2)**

- a. What could be the possible psychological & physiological effects of noise to man when the noise levels are?
  - i. 65 dBA ii. 90 dBA iii. 100 dBA iv. 120 dBA v. 150 dBA
- b. Define the following terms
  - i. Echo ii. Reverberation iii. Wave frequency iv. Wave Velocity
- c. Write concisely on.
  - i. Masking of sound ii. Sound absorbers iii. Reverberation time
  - iv. Inverse square law of sound v. Structure -borne sound vi. Transmission loss.**(20 marks)**

**Question (3)**

- a. Noise can affect hearing in four main ways explain.
  - i. Acoustic trauma ii. Temporary threshold shift (TTS)
  - ii. Permanent Threshold shift (PTS)
  - iii. Tinnitus
- b. Briefly explain these agents of hearing loss.
  - i. Ototoxic agent ii. Disease iii. Ageing iv. Sociocusis **(10 marks)**

**Question (4)**

- a. List and explain the 3 main parts of the ear and their role in hearing sounds
- b. Explain the terms
  - i. Gear noise ii. Bearing noise iii. Hydraulic system noise
  - iv. Engine noise v. fan noise **(10 marks)**

**Question (5)**

- a. In short notes explain the various methods in which noise transmission path are being modified .
- b. Explain the following additional noise control measure.
  - i. Maintenance ii. Quieter work practices iii. Administrative controls iv. Personal protective equipment v. health surveillance **(10 marks)**

**Question (6)**

- a. Briefly explain the objectives and learning outcomes / competence of environmental control II to you as a student.
- b. Explain the following as major sources of absorption / reflection in a room. i. ceiling ii. Wall iii. Floor iv. Furniture **(10 marks)**