UNIT-3, NOISE POLLUTION:

Noise is the unpleasant and undesirable unwanted intolerable disagreeable sound which leads to discomfort to human beings. The presence of extensive unwanted sounds creates an imbalance in the environment that leads to noise pollution.

The intensity of sound is measured in decibels (dB). The pleasant sound which can be heard by the Human ear is 1 dB. Any unwanted sound that penetrates the environment is noise pollution. In general noise pollution refers to irritating to ones ear which comes from external sources.

Noise pollution can be defined as any disturbing or unwanted noise that interferes humans or wildlife.

Sources of Noise Pollution:

- Industrial sources
- Transportation noise
- Neighborhood noise
- Automobiles
- Social Events /Fire works/Loudspeaker sound
- Agriculture machines.
- Military/Defense equipments and launching of satellite
- Construction Activities
- Transportation Noise
- Household chores
- Miscellaneous Sources
- Crowded market Noise
- Blowing siren, alarm, clock bell etc
- Explosion Fire Blasts
- Cutting of metal works
- mining Operations
- Sound from stone crushers
- These are the numbers of noise pollution sources causing both indoor and outdoor noise pollutions.

Measurement of noise pollution level:

A decibel (db) is the standard unit for the measurement of noise. The zero on a decibel scale is at the threshold of hearing, the lowest sound pressure that can be heard, on the scale accuracy. 20 db is whisper, 40 db the noise in a office. 60 db is normal conversation, 80 db is the level at which sound becomes physically painful. The noise is usually measured either by a sound, pressure or sound intensity The sound intensity is measured in decibel (dB), which is tenth part

of the longest unit Bel, named after Alexander Graham Bell. One dB is equal to the smallest sound, a human ear can hear. Decibel (dB) is the ratio expressed as the logarithmic scale relative to a reference sound pressure level. The dB is thus expressed as sound intensity measurement.

Human have a hearing sound range called as audible range this depend upon the frequency, pitch, loudness and intensity, The frequency ranges from 20Hrz to 20,000Hrz and loudness form 0to 120Db.

The WHO Defines noise above 65dB as noise pollution noise become harmful when it exceeds 75dB and is painful above 120 -130Bb so noise level kept below 65dB during day time and 30dB at night time.

Noise level at Different Zones:

Zones	Day Time	Night Time
Silent Zone	50dB	40dB
Residential Zone	55dB	45dB
Commercial Zone	65dB	55dB
Industrial Zone	75dB	70dB

Effects of Noise Pollution: Noise pollution causes physiological and psychological effects. The various effects of noise pollution on human beings maybe classified as Auditory effects and Non auditory effects. The most acute and immediate effect of noise pollution is impairing of hearing, which may cause auditory fatigue and may even finally lead to deafness. Non-auditory effects are also alarming, because of the fact that they may also cause serve diseases. Non-auditory effects Auditory sound effect : Listening to loud noise for a long time can overwork hair cells in the ear, which can cause these cells to die. The hearing loss progresses as long as the exposure continues. Harmful effects might continue even after noise exposure has stopped. Damage to the inner ear or auditory neural system is generally permanent.

Non auditory effect of sound: Non-auditory effects include stress, related physiological and behavioral effects, and safety concerns. Auditory effects include hearing impairment resulting from excessive noise exposure. Noise-induced hearing loss (NIHL) is the main concern related to occupational noise exposure

i. Neurosis, Psychological, mental disordersSleeping disorders
ii. Depth of sleep or sleeping disturbance
iii. Auditory effects and non auditory effects
iv. Anxiety, Insomnia ,Hypertension Cardio vascular diseases ,Hectic stress
v. Nausea, Irritation, Giddiness ,Fatigue, Change in skin temperature

vi. Blood circulation, Quickening of human fetus's heart rate. Troubles in Communication

Control of noise pollution: Noise pollution can be minimized by taking the following important measures.

Reduction or Suppression of noise at source.

a) Designing, fabricating and using quieter machines to replace the noisy ones and installing noisy machines in sound proof chambers.
b) Proper lubrication and better maintenances of machine.
c) Covering noise producing noise parts with sound absorbing materials.
d) Using silencers to control noise from automobiles
e) Developing mass transportation system to avoid road traffic noise.

2) **Acoustics Zoning/Reduction of transmission of noise or duration of exposure.**

a) Creating silence zones near residential areas, educational institutions and hospitals.
b) Proper planning of urban development i.e., developing industrial areas, aerodromes away from residential areas

3) Planting of Trees:

a) It has been found that plantation of trees like neem, coconut, tamarind etc. near public

4) .**Use of safety devices/ Protection of receivers**: a) Use ear plugs, ear muffs, noise helm ate, headphones etc
b) The workers working in factories are provided with the air protection aids.

5) Strict legislative measures to be enforced to minimize noise pollution. Some of these measures could be,

a) Minimum use of Speakers and amplifiers
b) Banning pressure horns in automobiles
c) Framing a separate noise pollution act.

Noise Pollution (Regulation and Control) Rules, 2000;

Union Government on 14 February 2000 enacted the Noise Pollution (Regulation and Control) Rules, 2000 in exercise of its power conferred under the Environment (Protection) Act, 1986 to control the increasing ambient noise level in public places from various sources.

The Noise Rules 2000 restricts the use of loud speakers/public address system and also to restrict the use of sound producing equipments. In all these cases a written permission is necessary for using such equipments. District Magistrate, Police Commissioner and other officer not below the rank of Deputy Superintendent of Police are the implementing authority under the Noise Rules, 2000. The State Government has been empowered to grant permission to use loudspeaker on or uring any cultural or religious festival occasion of limited duration not exceeding fifteen days in all during the calendar year. But such relaxation is not permissible between 10 PM and 12 midnights.