

7. Waste generation and management

(a) Sources of waste - domestic, industrial, agricultural, commercial and other establishments.

- *Domestic waste: paper, glass, plastic, rags, kitchen waste, etc.*
- *Industrial: mining operations, cement factories, oil refineries, construction units.*
- *Agricultural: plant remains, animal waste, processing waste.*
- *Municipal sewage: Sewage, degradable and non-degradable waste from offices, etc.*
- *e-waste: brief idea about e-waste.*

(b) Methods of safe disposal of waste.

- *Segregation, dumping, composting, drainage, treatment of effluents before discharge, incineration, use of scrubbers and electrostatic precipitators.*
- *Segregation of domestic waste into biodegradable and non-biodegradable by households: garden waste to be converted to compost; sewage treatment plants.*

INTERNAL ASSESSMENT OF PRACTICAL WORK

The practical work is designed to test the ability of the candidates to make accurate observations from specimens of plants and animals:-

PLANT LIFE

- (i) The examination of an onion peel under the microscope to study various parts of the cell.
- (ii) A cross-pollinated flower to be examined and identified and the parts to be studied and labelled e.g. Hibiscus.

- (iii) Specimens of germinating seeds with plumule and radicle (the bean seed and maize grain) for examination, identification, drawing and labelling the parts.

ANIMAL LIFE

- (i) The examination of a human cheek cell under the microscope to study various parts of the cell.
- (ii) Identification of sugar, starch, protein and fat through conduct of relevant tests.
- (iii) Examination and identification of specimens belonging to the following groups of animals:
Non-Chordata - Porifera, Coelenterata, Platyhelminthes, Nematelminthes Annelida, Arthropoda. Mollusca and Echinodermata.
Chordata- Pisces, Amphibia, Reptilia, Aves, Mammalia.
Identification of the structure of the following organs through specimens/models and charts:
Lung and skin.
- (iv) Experiments to show the mechanism of breathing.
Bell jar experiment should be discussed. Comparison should be made with the human lungs and respiratory tract to show the mechanism of breathing.
- (v) Visit a few establishments in the locality such as motor repair workshops, kilns, pottery making units, fish and vegetable markets, restaurants, dyeing units. Find out the types of wastes and methods prevalent for their disposal. On the basis of the information collected prepare a report, suggest measures to improve the environmental conditions.
- (vi) Visit a water treatment plant, sewage treatment plant or garbage dumping or vermicomposting sites in the locality and study their working.