

## BP106RBT. REMEDIAL BIOLOGY (Theory)

30 Hours

### Course content:

#### Unit-I

07 Hours

##### Living world:

Definition and characters of living organisms.

Diversity in the living world.

Binomial nomenclature.

Five kingdoms of life and basis of classification. Salient features of Monera, Protista, Fungi, Animalia and Plantae, Virus.

##### Morphology of flowering plants

Morphology of different parts of flowering plants- Root, stem, inflorescence, flower, leaf, fruit, seed.

General Anatomy of Root, stem, leaf of monocotyledons & Dicotyledons.

#### Unit-II

07 Hours

**Body fluids and circulation:** Composition of blood, blood groups, coagulation of blood, Composition and functions of lymph, Human circulatory system, Structure of human heart and blood vessels, Cardiac cycle, cardiac output and ECG.

**Digestion and absorption:** Human alimentary canal and digestive glands, Role of digestive enzymes, Digestion, absorption and assimilation of digested food.

**Breathing and respiration:** Human respiratory system, Mechanism of breathing and its regulation, Exchange of gases, transport of gases and regulation of respiration, Respiratory volumes.

#### Unit-III

07 Hours

**Excretory products and their elimination:** Modes of excretion, Human excretory system-structure and function, Urine formation, Renin-angiotensin system.

**Neural control and coordination:** Definition and classification of nervous system, Structure of a neuron, Generation and conduction of nerve impulse, Structure of brain and spinal cord, Functions of cerebrum, cerebellum, hypothalamus and medulla oblongata.

**Chemical coordination and regulation:** Endocrine glands and their secretions, Functions of hormones secreted by endocrine glands

**Human reproduction:** Parts of female reproductive system, Parts of male reproductive system, Spermatogenesis and Oogenesis, Menstrual cycle.

#### Unit-IV

05 Hours

**Plants and mineral nutrition:** Essential mineral, macro and micronutrients, Nitrogen metabolism, Nitrogen cycle, biological nitrogen fixation

**Photosynthesis:** Autotrophic nutrition, photosynthesis, Photosynthetic pigments, Factors affecting photosynthesis.

#### Unit-V

04 Hours

**Plant respiration:** Respiration, glycolysis, fermentation (anaerobic).

**Plant growth and development:** Phases and rate of plant growth, Condition of growth, Introduction to plant growth regulators

**Cell - The unit of life:** Structure and functions of cell and cell organelles. Cell division

**Tissues:** Definition, types of tissues, location and functions.

## **BP112RBP. REMEDIAL BIOLOGY (Practical)**

**30 Hours**

1. Introduction to experiments in biology.
  - a) Study of Microscope.
  - b) Section cutting techniques.
  - c) Mounting and staining.
  - d) Permanent slide preparation.
2. Study of cell and its inclusions.
3. Study of Stem, Root, Leaf, seed, fruit, flower and their modifications.
4. Detailed study of frog by using computer models.
5. Microscopic study and identification of tissues pertinent to Stem, Root, Leaf, seed, fruit and flower.
6. Identification of bones.
7. Determination of blood group.
8. Determination of blood pressure.
9. Determination of tidal volume.

### **Textbooks:**

- Textbook of Biology by S. B. Gokhale.
- A Textbook of Biology by Dr. Thulajappa and Dr. Seetaram.

### **Reference Books:**

- A Textbook of Biology by B.V. Sreenivasa Naidu.
- A Textbook of Biology by Naidu and Murthy.
- Botany for Degree Students by A.C. Dutta.
- Outlines of Zoology by M. Ekambaranatha Ayyer and T.N. Ananthkrishnan.
- A Manual for Pharmaceutical Biology Practical by S.B. Gokhale and C.K. Kokate.

### **Recommended Books (Latest Edition):**

- Practical Human Anatomy and Physiology by S.R. Kale and R.R. Kale.
- A Manual of Pharmaceutical Biology Practical by S.B. Gokhale, C.K. Kokate and S.P. Shrivastava.
- Biology Practical Manual According to National Core Curriculum Biology Forum of Karnataka by Prof. M.J.H. Shafi.