

**SAVITRIBAI PHULE PUNE UNIVERSITY**  
**Progressive Education Society's**  
**Modern College of Arts, Science and Commerce, Ganeshkhind, Pune-411016**  
**B.Sc. Blended Program**

(A degree of Savitribai Phule Pune University equivalent to the degree of University of Melbourne)

**End Semester Examination: October/November 2022(January 2023)**

**Program: B.Sc. Blended**

**Program (Specific): B.Sc. Blended (Chemistry) Set: A**

**Class: S.Y.B.Sc. Blended**

**Semester: III**

**Course code: BIO 304**

**Course name: Functional Biology**

**Credits: 3**

**Time: 2½ hours**

**Maximum marks: 50**

Instructions to the candidate:

- All questions are compulsory.
- Figures to the right indicate marks.
- Draw diagrams wherever necessary.
- Use of scientific calculator is allowed.
- Ask for graph paper if needed.

**Q. 1 Select the appropriate answer. (Solve any 10 out of 12)**

**[1x10=10 10M]**

1. Plant growth takes place due to.....tissue
  - a) Meristematic
  - b) Complex tissue
  - c) Epidermal tissue
  - d) Sclerenchyma
2. Loss of chlorophyll due to deficiency of mineral is called....
  - a) Senescence
  - b) Necrosis
  - c) Chlorosis
  - d) None of these
3. Dark reaction occurs in
  - a) Chloroplast
  - b) Thylakoid
  - c) Stroma
  - d) Intermembrane space
4. Water moves from one cell to other through plasmodesmata is known as....
  - a) Symplastic pathway
  - b) Apoplastic pathway
  - c) Transmembrane pathway
  - d) None of these
5. Respiration takes place in.....
  - a) Chloroplast
  - b) Mitochondria
  - c) Endoplasmic reticulum
  - d) Nucleus

6. When day length is less than 12 Hrs. which plants show flowering...
  - a) Short day
  - b) Long day
  - c) Both
  - d) None of these
7. Single layer of cells lying on the basement membrane \_\_\_\_
  - a).Muscular tissue
  - b) Simple epithelium
  - c) Nervous tissue
  - d) Compound epithelium
8. A long tube that carries food from the mouth to the stomach
  - a) Oesophagus
  - b) Trachea
  - c) Ureter
  - d) Oviduct
9. Gas exchange takes place in the
  - a) Alveoli
  - b) Larynx
  - c) Pharynx
  - d) Trachea
10. Which gland is located just superior to the kidneys?
  - a) Pituitary
  - b) Adrenal.
  - c) Pancreas
  - d) Ovaries
11. Which of the following gland can be classified as an endocrine and an exocrine gland?
  - a) Thyroid.
  - b) Thymus.
  - c) Pancreas.
  - d) Pituitary.
12. The functional unit of the kidney is called
  - a) Glomerulus
  - b) Nephron.
  - c) Corpuscle
  - d) Calyx

**Q.2. Answer in brief (Solve any 10 out of 12)**

**[2x10= 20M]**

1. Draw a well labeled diagram of kidney.
2. Name and write two functions of digestive enzymes.
3. Name the gonads of human.
4. Mention two functions of cerebellum.
5. Define osmoregulation.
6. Write two characters of connective tissue with examples.
7. What are the different pathways of water transport across root?

8. Draw the well labeled diagram of chloroplast showing site of photosynthesis.
9. Write the difference between plant and animal growth.
10. Write the different process takes place during cell elongation phase.
11. What are the different symptoms of mineral deficiency?
12. Girdling experiment.

**Q.3 Answer the following.** (Solve any 4 out of 6)

**[4x5=20M]**

1. Explain the mechanism of internal respiration.
2. Explain the working of heart.
3. Describe conduction of nerve impulse w.r.t action potential.
4. Explain beta oxidation of fatty acid?
5. What is the sugar-starch hypothesis of opening and closing of stomata?
6. What is mineral assimilation? Explain the mass flow theory of mineral assimilation.