

[Time: 3 Hours]

[Max. Marks: 80]

**III SEMESTER****PAPER - I (Bioanalytical Tools)****QP CODE: 8375**

Your answer should be specific to the questions asked.

Write Question No. in left side of margin.

**Long Questions****10X1 = 10 Marks**

1. Explain in detail about UV-visible spectrophotometer.

**Short Essays: (Any – 8)****5 X 8 = 40 Marks**

2. Write in detail about types of chromatography.
3. Explain principle of centrifugation.
4. Describe the components of electron microscope.
5. Define beers-lambert's law with equation
6. Write in detail about working of polyacrylamide gel electrophoresis
7. What is electron gun? Write its uses.
8. Describe instrumentation of colorimeter.
9. Define following
  - g) Reflective index
  - h) X-ray diffraction
  - i) Sevedberg unit
10. Application of pulse field electrophoresis

**Short Answers: (Any – 10)****3 X 10 = 30 Marks**

11. Define electromagnetic spectrum
12. Write about working of phase contrast microscope.
13. Staining techniques used in electrophoresis
14. Stains uses in paper chromatography
15. What is blotting techniques?
16. How sample is prepared for bright field microscope?
17. Write about different types of rotar used in centrifuge.
18. Write application of paper chromatography
19. Write various types zone electrophoresis
20. Application of electron microscope in various field of biology
21. Principle of FT-IR spectrophotometer.

**B.Sc. in Biotechnology**

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**III SEMESTER****PAPER - II (General Microbiology)****QP CODE: 8376**

Your answer should be specific to the questions asked.

Write Question No. in left side of margin.

**Long Questions****10X1 = 10 Marks**

1. Explain the sterilization techniques used microbiology.

**Short Essays: (Any – 8)****5 X 8 = 40 Marks**

2. General characteristics of microorganisms
3. Write principle, working of bright field microscope
4. What are the 5 kingdom classification of microorganisms
5. Describe the nutrition requirement for growth of microorganism
6. Explain the streak plate and pour plate method for cultivation microorganism
7. Growth curve and define generation time
8. How to preserve microorganism culture
9. Application of microorganism in various field
10. What are factors affecting growth of bacteria

**Short Answers: (Any – 10)****3 X 10 = 30 Marks**

11. Write short note on microtome technique
12. Write distinguishing characteristic of protozoa
13. Give detail structure of prokaryotic with neat labelled diagram.
14. Asexual reproduction of bacteria
15. Describe in brief about cultivation of bacteria
16. Describe the composition of nutrient agar
17. Explain synchronous batch and continuous culture
18. Serial dilution technique
19. What is endospore?
20. Explain procedure of gram staining technique.
21. Different techniques used to preserve to microbial culture.

**B.Sc. in Biotechnology**

[Time: 3 Hours]

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**III SEMESTER**

**PAPER - II (Mammalian physiology)**

**QP CODE: 8377**

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Write Question No. in left side of margin.

**Long Questions**

**10X1 = 10 Marks**

1. Define cardiac output. Give its Normal value. Explain variations in cardiac output.

**Short Essays: (Any – 8)**

**5 X 8 = 40 Marks**

2. Describe digestion and absorption of fats
3. Enlist hormones of Pituitary Gland.
4. Define synapse. Give different types of synapse
5. Discuss conducting system of heart with neat labelled diagram.
6. Define cardiac Cycle. Give normal value and events of cardiac cycle.
7. Discuss mechanism of formation of urine
8. Define erythropoiesis. Normal value of RBCs . Explain the terms polycythemia and anaemia.
9. Enlist properties of skeletal muscle. Explain all or none law of skeletal muscle.
10. Explain Chloride shift.

**Short Answers: (Any – 10)**

**3 X 10 = 30 Marks**

11. Draw a neat labelled diagram of sarcomere
12. Enlist functions of bile.
13. Enlist functions of blood.
14. Give composition of gastric juice.
15. Draw a neat labelled diagram of neuron.
16. Enlist functions of thyroid hormone.
17. Explain Isotonic and Isometric Contraction.
18. Give normal value of WBCs. What is neutrophillia and neutropenia.
19. Enlist types of Carbohydrates.
20. Functions of saliva
21. Enlist types of stimulus.