QUESTION PAPER
(PAPER 2)
TECHNICAL ASSISTANT
(BIOLOGICAL SCIENCES)

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Paper II

1. Write are the basic difference (pointwise) between a prokaryotic cell, a plant cell and an animal cell?

2. What are the key differences between angiosperms and gymnosperms? Show pointwise in a tabular form.

3. A given Students' microscope has good quality high power objective lenses. What kind of adjustments can you make to obtain best resolution using this microscope? Give reasons in favour of your answers.

4. A centrifuge given to you has three types of rotors, swing-out, angular and vertical. With the help of diagram demonstrate in which position of the centrifuge tubes the pellets will be formed in the three given cases.

5. Explain the first law of Mendel. Indicate clearly with the diagram when the segregation of the two alleles take place.

6. (A) Explain why phospholipids are organized in a cell membrane as a bilayer?

   (B) What will happen if all the fatty acid chains in phospholipids in a cell membrane are replaced by saturated fatty acid chains?

7. What are the four essential requirements for photosynthesis to occur and what are the main products formed? Show the outline of the reactions.

8. What do you understand by oxidative phosphorylation? Illustrate with diagram how the inhaled oxygen is utilized in cellular respiration?

9. (A) What will happen to the cell if its one or two lysosome/s leak inside? Give reason in favour of your answer.

   (B) With the help of a flow chart (no descriptions desired) depict where the lysosomal enzymes are synthesized and how do they get transported to the lysosomes?