



বিদ্যাসাগর বিশ্ববিদ্যালয়
VIDYASAGAR UNIVERSITY
Question Paper

B.Sc. Honours Examinations 2022

(Under CBCS Pattern)

Semester - VI

Subject: BIOTECHNOLOGY

Paper : C 13-T

(Bio-analytical Tools)

Full Marks : 40

Time : 2 Hours

Candidates are required to give their answer in their own words as far as practicable.

The figures in the margin indicate full marks.

Group - A

Answer any **four** questions from the following : 5×4=20

1. Write down the principle of phase contrast microscope. Mention its biological applications. 3+2
2. Briefly describe the instrumental design of pH meter. State the principle of colorimetry. 3+2
3. Describe the methods of different sub-cellular organelles separation technique by centrifugation. 5
4. State the functional differences between Paper Chromatography (PC) and Column Chromatography (CC). Mention the application of HPLC in the field of biology. 2+3

5. Briefly describes the working procedure of immune-electrophoresis technique. State the principle of Western blotting. 4+1
6. Write down the biological application of bio-sensors. What do you understand by absorption spectroscopy? 3+2

Group - B

Answer any *two* questions from the following : 10×2=20

1. Describe the different components used in transmission electron microscope (TEM) with a suitable diagram. Write down the principle of TEM. What is the nature of electron gun used in scanning electron microscopy? 5+3+2
2. Describe briefly the instrumental parts of phase contrast microscope (PCM). Write down the process of agarose gel electrophoresis. 5+5
3. How Beers-Lambert law applied in UV-Spectrophotometry? What are the limitations of this law? What is the basic principle of gas chromatography? 3+2+5
4. What do you understand by nano-technology? Describe shortly the application of nano-technology in the area of biological research. Write a short note on pulse field gel electrophoresis. 2+4+4
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