



WEST BENGAL STATE UNIVERSITY
B.Sc. Honours 4th Semester Examination, 2022

IFFACOR09T- INDUSTRIAL FISH AND FISHERIES (CC9)

BIOLOGICAL TOOLS AND TECHNIQUES

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.*

1. Answer any **seven** questions from the following: 2×7 = 14
 - (a) What is the principle of chromatography?
 - (b) Why tissue fixation is important during histological slide preparation?
 - (c) Write the composition of Bouin's and Carnoy's fixative.
 - (d) What are the limitations of phase contrast microscopy?
 - (e) Define dichroic mirror and its advantage.
 - (f) Name the fixative used in TEM.
 - (g) Write the objective of centrifugation.
 - (h) Write the difference between gel electrophoresis and SDS-PAGE.
 - (i) What are the advantages and disadvantages of optical microscope?

2. Write short notes on any **two** of the following: 3×2 = 6
 - (a) Parts of phase contrast microscope and their function.
 - (b) Difference between the working principle of TEM and SEM.
 - (c) Histochemical preparation of tissue.
 - (d) Micrometry.

3. Answer any **four** questions from the following: 5×4 = 20
 - (a) Briefly describe the procedure of gel electrophoresis. 5
 - (b) Explain the working mechanism of scanning electron microscopy. 5
 - (c) Write the difference between density differential and density gradient centrifugation. Write the application of paper chromatography. 3+2
 - (d) Write the working principle of compound microscope with illustration. Briefly describe the specimen preparation for SEM. 3+2
 - (e) Describe paper chromatography with suitable example and determine the R_f value. 3+2
 - (f) What is microtomy? Describe the different steps involved in tissue preparation for microtomy. 1+4

N.B. : *Students have to complete submission of their Answer Scripts through E-mail / Whatsapp to their own respective colleges on the same day / date of examination within 1 hour after end of exam. University / College authorities will not be held responsible for wrong submission (at in proper address). Students are strongly advised not to submit multiple copies of the same answer script.*

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