0403E1399

Candidate's Seat No :_____

MSc Sem.-1 Examination

403

Zoology

Time : 2-30 Hours] **February-2025** **[Max. Marks : 70**

Q-I	1	Explain numerical aperture.	(07)
	2	Explain the structure and functioning of transmission electron microscopes.	(07)
		OR	OR
	1	Explain principle, structure and functioning of phase contrast microscope.	(07)
	2	Write a note on aberrations of light microscopes.	(07)
Q-II	1	Describe the differential centrifugation method in detail with a diagram.	(07)
	2	Using a diagram, describe the different kinds of centrifuge rotors.	(07)
		OR	OR
	1	Give the full form of PFGE and explain it thoroughly.	(07)
	2	Give various applications and write in detail regarding capillary electrophoresis.	(07)
Q-III	1	Explain briefly collimating system and monochromator for UV/Vis spectroscopy.	(07)
	2	Discuss the principles and applications of HPTLC.	(07)
		OR	OR
	1	Give a detailed note on paper chromatography.	(07)
	2	Explain the HPLC working principle and applications.	(07)
Q-IV	1	Give an account of various staining techniques and stains used in histology.	(07)
	2	Briefly explain the general characteristics, classification and types of epithelial tissues.	(07)
		OR	OR
	1	Explain the tissue embedding processes.	(07)
	2	Explain the five classes of fixatives based on their mechanism of action. Add a note on the varios factors affecting fixation.	(07)
Q-V		**Answer any SEVEN out of TWELVE.**	(14)
	1	Enlist advantages and disadvantages of confocal microscope to that of fluorescence microscope.	02
	2	Draw the well labeled diagram for the interaction of electrons with material in respect to the electron microscope.	02
	3	Draw the diagram for the light path in a stereo microscope.	02
	4	The formula to calculate the retarding force (Fs) for electrophoresis is _____, where 'n' is _____ and 'v' is _____.	02
	5	Fill in the blank: Centrifugal Force (F) = _____ (Give formula to calculate F) where 'm' is _____ and the angular velocity is indicated as _____.	02
	6	Name the ingredients that were utilized to make the polyacrylamide gel.	02
	7	What is the primary role of the matrix in MALDI?	02
	8	What is the capacity factor (k') in HPLC?	02
	9	Define: Adsorption.	02
	10	Give two examples each of microanatymical, cytological and histochemical fixatives.	02
	11	What are mordants?	02
	12	What are ground substances? Give suitable examples.	02