

MSc Sem.-1 Examination

402

CE & ART

Time : 2-30 Hours]

February-2025

[Max. Marks : 70

Q.1A	Compare and contrast binocular, trinocular, and stereozoom microscopes.	7
Q.1B	What is a stereozoom microscope? Discuss its applications in biological research.	7
OR		
Q.1A	Explain the role of microscopes in ART procedures and their importance in fertility labs.	7
Q.1B	Explain the advantages and limitations of an inverted microscope in ART labs.	7
Q.2 A	Compare and contrast G-banding, Q-banding, and C-banding techniques.	7
Q.2 B	Explain the FISH technique and its applications in chromosomal analysis.	7
OR		
Q.2 A	Describe the methodology of preparing and analyzing a karyotype.	7
Q.2 B	Explain the metaphase arrest procedure in detail with appropriate diagram.	7
Q.3 A	What are the potential sources of contamination in ART labs, and how can they be controlled?	7
Q.3 B	What are polytene chromosomes, and how are they studied in Drosophila?	7
OR		
Q.3 A	Compare and contrast Turner, Klinefelter's, and Down syndrome in terms of karyotype and symptoms.	7
Q.3 B	What are numerical and structural chromosomal abnormalities? Explain with examples.	7
Q.4 A	What is biomedical waste management? Explain its importance in ART labs.	7
Q.4 B	Explain the maintenance of an ART laboratory and essential equipment required.	7
OR		
Q.4 A	What is Platelet-Rich Plasma (PRP)? Explain its preparation and applications in ART.	7
Q.4 B	Differentiate between quality control and quality assurance in ART.	7
Q.5	Answer the Following Short Questions (Any 7)	14
1	What is FISH?	
2	What is a karyogram?	
3	What is the normal chromosomal number in humans?	
4	What is colchicine, and how does it help in metaphase arrest?	
5	What is the difference between Turner syndrome and Androgen Insensitivity Syndrome?	
6	What is Platelet-Rich Plasma (PRP)?	

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7	What is air quality monitoring in ART labs?	
8	What are the common disinfectants used in ART labs?	
9	How is metaphase chromosome spreading performed?	
10	What is Down syndrome?	
11	What is the purpose of a stereozoom microscope?	
12	What are the applications of an inverted microscope?	