

MSc Sem.-1 Examination

403

CE & ART

Time : 2-30 Hours]

February-2025

[Max. Marks : 70

Q.1A	Discuss the standard operating procedures (SOPs) for semen handling and processing.	7
Q.1B	Explain the essential requirements for setting up an IUI lab.	7
	OR	
Q.1A	What are the different biohazards in an andrology laboratory and how can they be managed?	7
Q.1B	Describe the key instruments and disposables used in an andrology laboratory.	7
Q.2 A	Describe Strict Kruger's criteria and its importance in sperm morphology evaluation.	7
Q.2 B	Explain the WHO guidelines for semen analysis in detail.	7
	OR	
Q.2 A	What is the Hypo-Osmotic Swelling (HOS) test, and why is it important in semen analysis?	7
Q.2 B	How does lab contamination affect semen analysis results?	7
Q.3 A	What are Reactive Oxygen Species (ROS), and how do they impact sperm function?	7
Q.3 B	Explain the MAR (Mixed Antiglobulin Reaction) test in detail.	7
	OR	
Q.3 A	Describe the significance of the Fructose test in semen analysis.	7
Q.3 B	Describe the Immunobead test and its application in detecting antisperm antibodies.	7
Q.4 A	Describe the Sperm Chromatin Structure Assay (SCSA) and its clinical implications.	7
Q.4 B	Explain the importance of software algorithms in CASA analysis.	7
	OR	
Q.4 A	Discuss the principle and application of fluorescence microscopy in sperm analysis.	7
Q.4 B	Explain the principle, procedure, and significance of the TUNEL assay.	7
Q.5	Answer the Following Short Questions (Any 7)	14
1	What is the role of a laminar airflow cabinet in semen analysis?	
2	What does WHO manual specify for semen analysis?	
3	Why is liquid nitrogen used in an andrology laboratory?	
4	What are the personal protective equipment (PPE) used in an andrology lab?	
5	What is the purpose of carbon dioxide (CO ₂) incubators in ART labs?	
6	Why should latex materials be avoided in sperm handling?	

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7	What is the purpose of a Makler counting chamber?	
8	What does the Acridine Orange staining test detect?	
9	What are the common errors in manual semen analysis?	
10	What does agglutination in semen suggest?	
11	How does hyperviscosity affect sperm movement?	
12	What is the function of sperm selection chips?	
