

## MSc Sem.-2 Examination

410

MLT

May-2025

Time : 2-30 Hours]

[Max. Marks : 70

Q1A	Describe Microscopy in detail. Provide the insights into Epifluorescence and Bright Field Microscopes.	7 Marks
Q1B	List the cellular changes observed in cancer. Provide the detailed insight into solid tumor.	7 Marks
OR		
Q1A	How would you examine the body fluid under the microscope? Please provide the insight into CSF and Plural fluid.	7 Marks
Q1B	Provide an insight in to upright and inverted microscopes. Provide the details related to their applications and limitations.	7 Marks
OR		
Q2A	Describe chromosomes in detail.	7 Marks
Q2B	Describe peripheral blood lymphocyte culture technique in detail.	7 Marks
OR		
Q2A	What are the most common chromosomal abnormalities? Describe each in detail.	7 Marks
Q2B	Describe Karyotyping procedure in detail.	7 Marks
OR		
Q3A	Describe FISH technique in detail.	7 Marks
Q3B	Describe any two syndromes with chromosomal aneuploidy in detail.	7 Marks
OR		
Q3A	Describe different types of FISH probes and their utility in diagnostics.	7 Marks
Q3B	What is dual colour dual fusion FISH probes? What is their utility in cancer diagnostics?	7 Marks
OR		
Q4A	What is molecular cytogenetics? Provide detailed insight.	7 Marks
Q4B	What is a copy number change? Which technique is used for identifying the copy number changes?	7 Marks
OR		
Q4A	Describe CGH in details. Provide insight into the array CGH and its utility.	7 Marks
Q4B	Provide insight in the copy number changes in cancer. Which molecular cytogenetic techniques could be used?	7 Marks
OR		
<b>Q5</b>	<b>Answer the following questions (Any Seven)</b>	<b>14 Marks</b>
I	_____ arrests the cell division in metaphase stage and _____ stimulates lymphocytes.	2 Marks
II	Trypsin is used for which banding technique?	2 Marks
III	Incubator without CO <sub>2</sub> is used for blood and bone marrow cultures while Incubator with CO <sub>2</sub> is used for amniocytes, chorionic villi. Is the statement true?	2 Marks

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IV	Karyotype is a synonym of karyogram? Is it true? If not, explain the difference.	2 Marks
V	Robertsonian translocation is a rearrangement between two sub-metacentric chromosomes? Is it true? If not, please provide the correct answer.	2 Marks
VI	Please complete the following karyotype for a female baby with Turner Syndrome, 4 ____.	2 Marks
VII	Please complete the following karyotype for a male carrier of a translocation between chromosomes 11 and 22 with the breakpoints at q23 and q11 regions, respectively, 46, ____.	2 Marks
VIII	Please describe the following karyotype in your own words. 46,XY,del(5)(q33).	2 Marks
IX	List two key differences between upright and inverted microscopes.	2 Marks
X	What is the role of colchicine in metaphase arrest during cell culture?	2 Marks
XI	What is the primary application of dual-colour dual-fusion FISH probes in cancer diagnostics?	2 Marks
XII	Name any two cellular changes commonly observed in cancer cells.	2 Marks

**BEST OF LUCK**