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GIET UNIVERSITY, GUNUPUR - 765022
M. Sc (Second Semester) Regular Examinations, July - 2023
22LSPC201 - MOLECULAR BIOLOGY & INSTRUMENTAL TECHNIQUES
(Life Science)

Time: 3 hrs

Maximum: 70 Marks

(The figures in the right hand margin indicate marks.)

PART - A**(2 x 10 = 20 Marks)**

Q.1. Answer <i>ALL</i> questions	CO #	Blooms Level
a. Name eukaryotic cellular organelles which contain circular DNA?	CO1	K3
b. How does formation of phosphodiester bond take place during formation of DNA polynucleotide chain?	CO1	K2
c. What is meant by activation of amino acids?	CO1	K1
d. What is klenow fragment?	CO2	K1
e. Name two inhibitors of translation process and their mechanism?	CO2	K3
f. If objective lens of 45X is used with 20X ocular lens, what would be the magnification of the image?	CO2	K3
g. Why it is important to stain specimen to visualize?	CO3	K2
h. What is ligand? Give example.	CO3	K1
i. Which technique is useful to detect transcript expression?	CO4	K2
j. Write the principle of gel electrophoresis.	CO4	K3

PART - B**(10 x 5 = 50 Marks)**Answer *ANY FIVE* questions

	Marks	CO #	Blooms Level
2. a. Discuss about the genome organization in prokaryotes.	5	CO1	K2
b. Explain the concept of Semiconservative replication of DNA experimentally?	5	CO1	K1
3.a. Explain the inhibitory mechanism of chloramphenicol.	3	CO1	K1
b. Discuss the mechanisms of post translational modifications.	7	CO1	K2
4. a. Draw a labelled structure of tryptophan operon.	2	CO2	K3
b. Explain the co-regulation of tryptophan operon.	8	CO2	K1
5.a. Explain Beer-Lambert's Law.	2	CO2	K1
b. Illustrate the principle, instrumentation, and application of UV-Visible spectrophotometry.	8	CO2	K3
6. a. What is chemical shift?	2	CO3	K1
b. Discuss the principle, instrumentation, and application of NMR spectroscopy.	8	CO3	K2

7.a.	Write the principle of chromatography	2	CO3	K2
b.	Explain the principle and procedure of gel exclusion chromatography.	8	CO4	K1
8. a.	Describe in detail about southern blotting and its procedure with a flow diagram.	8	CO4	K2
b.	Write the application of real time PCR.	2	CO4	K2

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