QP Code: R252G044 | Reg. No | | | | | | | | | | | AY 24

Gandhi Institute of Engineering and Technology University, Odisha, Gunupur
(GIET UNIVERSITY)

M.Sc. (Second Semester - Regular) Examinations, July – 2025

24MBIPC12005 – Molecular Diagnostics

(Biotechnology)

Time: 3 hrs | Maximum: 60 Marks

Answer ALL questions

(The figures in the right hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

Q.1. Answer ***ALL*** questions		CO #	Blooms Level
a.	What are the gene mutations?	CO1	K1
b.	What is the role of the isotopes used in florescence's test?	CO2	K3
c.	What are the organizations that are established especially for child cancer.	CO3	K6
d.	When PET scan and NGS is available but blood test and Southern Blotting is encouraged in which type of disease detection.	CO4	K3
e.	What are the difference between MALDI and SALDI-TOF-MS.	CO1	K3

PART – B **(10 x 5 = 50 Marks)**

Answer ***ALL*** the questions		Marks	CO #	Blooms Level
2. a.	Discuss in detail about SAGE techniques.	5	CO1	K3
b.	Evaluate the different types of gene mutation in chromosomes that causes diseases.	5	CO1	K2
	(OR)			
c.	Demonstrate the working and principle of RFLP.	5	CO1	K6
d.	Analyse the working and principle of multiplex PCR.	5	CO1	K3
3.a.	Metabolite profile for biomarker detection the body fluids/tissues in various metabolic disorders by making using NMR technological platforms	5	CO2	K6
b.	Describe in clear the procedure of PCR and also explain in clear the role of each and chemical used for in PCR.	5	CO2	K5
	(OR)			
c.	Direct detection and identification of pathogenic-organisms that are slow growing or currently lacking a system of in vitro cultivation as well as genotypic markers of microbial resistance to specific antibiotics.	5	CO2	K5
d.	Evaluate chromosomal structure and mutations	5	CO2	K2
4.a.	Explain about RT-PCR and its applications.	5	CO3	K4
b.	Describe about Fragile X Syndrome.	5	CO3	K5
	(OR)			
c.	Summarize about von-Hippel Lindau disease, recent acquisition in growing number of familial cancer syndromes.	5	CO3	K3
d.	Explain about biomarker testing for detection of cancer.	5	CO3	K5
5.a.	Describe about types of cancer-causing alterations revealed by next-generation sequencing of clinical isolates.	5	CO4	K5

b.	Justify about Target therapy in cancer patients.	5	CO4	K2
	(OR)			
c.	Demonstrate in brief about predictive biomarkers for personalized onco-therapy of human breast cancer disease.	5	CO4	K6
d.	Describe in brief about the genes and type of cancer used in patient and also gene aberrations.	5	CO4	K5
6. a.	Analyses the working procedure of SSCP in molecular diagnosis.	5	CO1	K3
b.	Discusses about preventing toxicity of standard systemic therapies	5	CO1	K2
	(OR)			
c.	Discuss in detail about Regulations and approved testing	5	CO1	K3
d.	Discuss about the bioinformatics data acquisition & analysis	5	CO1	K3

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