



B.TECH DEGREE EXAMINATIONS: NOV/DEC 2022

(Regulation 2018)

Seventh Semester

BIOTECHNOLOGY

U18BTE0006: Molecular Diagnostics

COURSE OUTCOMES

- CO1:** Define the significance of molecular diagnostics and enlist the type of diseases and infections.
CO2: Evaluate the diagnostic tools available for identifying the infections caused by micro-organisms
CO3: Relate the biomarkers as diagnostic tools and infer the biochemical diagnostics for metabolic disorders.
CO4: Comprehend the techniques for the pre-natal testing of inherited genetic disorders.
CO5: Apply the methods available for the diagnosis of cancer.
CO6: Outline the genetic disorders and the tools employed for the detection of neo-natal diseases.

Time: Three Hours

Maximum Marks: 100

Answer all the Questions: -

PART A (10 x 2 = 20 Marks)

(Answer not more than 40 words)

- | | | |
|---|-----|-------------------|
| 1. Cite few examples of parasitic infections. | CO1 | [K ₁] |
| 2. Deduce the mediation of bacterial pathogenesis. | CO2 | [K ₃] |
| 3. Define Trypanosomiasis. | CO1 | [K ₁] |
| 4. Critique the diagnosis of Schistosomiasis. | CO3 | [K ₅] |
| 5. Validate the use of Alanine transaminase as a biomarker. | CO4 | [K ₅] |
| 6. Quote a few examples of tumor markers. | CO5 | [K ₁] |
| 7. Comment on amniocentesis. | CO4 | [K ₂] |
| 8. Recall on cDNA arrays. | CO6 | [K ₂] |
| 9. Distinguish between neonatal and prenatal disease diagnostics. | CO6 | [K ₄] |
| 10. Infer comparative genomic hybridization. | CO5 | [K ₂] |

Answer any FIVE Questions: -

PART B (5 x 16 = 80 Marks)

(Answer not more than 400 words)

- | | | | |
|---|---|-----|-------------------|
| 11. a) Summarize the identification and diagnosis of bacterial infectious diseases. | 8 | CO2 | [K ₂] |
| b) Prioritize the significance, scope, and rise of diagnostic industry in the present scenario. | 8 | CO3 | [K ₄] |

- | | | | | | |
|-----|----|--|---|-----|-------------------|
| 12. | a) | Evaluate the diagnosis of dengue virus. | 8 | CO2 | [K ₅] |
| | b) | Differentiate the diagnostic methods for DNA and RNA viruses. | 8 | CO1 | [K ₄] |
| 13. | a) | Critique the importance of biochemical diagnostics in detecting inborn errors of metabolism. | 8 | CO4 | [K ₃] |
| | b) | Elaborate on glycogen storage disorders. | 8 | CO6 | [K ₂] |
| 14. | a) | Enumerate the different non-invasive techniques of prenatal diagnosis. | 8 | CO4 | [K ₂] |
| | b) | Write a detailed note on monoclonal antibodies. | 8 | CO4 | [K ₃] |
| 15. | a) | Discuss in detail about Cancer cytogenetics. | 8 | CO5 | [K ₂] |
| | b) | Outline the diagnostic approach for sex-linked inherited disorders. | 8 | CO6 | [K ₄] |
| 16. | a) | Describe in detail about <i>in situ</i> hybridization and comparative genomic hybridization. | 8 | CO1 | [K ₂] |
| | b) | Appraise the importance of immunodiagnostics of cancer. | 8 | CO5 | [K ₅] |
