

# Question Paper

Exam Date & Time: 27-Jun-2022 (10:00 AM - 01:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER M.Sc. MLT DEGREE EXAMINATION - JUNE/JULY 2022

SUBJECT: MLT5002 - MOLECULAR BIOLOGY AND APPLIED GENETICS

(SPECIALIZATION: CLINICAL BIOCHEMISTRY / HAEMATOLOGY AND IMMUNOHAEMATOLOGY / MICROBIOLOGY AND IMMUNOLOGY)  
(2021 SCHEME)

Marks: 100

Duration: 180 mins.

Answer all the questions.

- 1) Explain in detail the components and structure of DNA with a diagram. Discuss in detail the types of DNA. (20)
- 2) Explain different types of Vectors used in rDNA technology, detail with procedure. (20)
- 3A) Explain the process of transcription in eukaryotes with a neat diagram. Add a note on splicing. (10)
- 3B) Explain the gene therapy. Add a note on pharmaceutical products. (10)
- 3C) What is mutation? Discuss the different types of mutation and various mutagenesis. (10)
- 3D) Explain LAC & Tryptophan operon. (10)
- 4A) Explain DNA fingerprinting. (5)
- 4B) Explain topoisomerases. (5)
- 4C) Explain Prenatal diagnosis of genetic disease. (5)
- 4D) Explain Phenylketonuria. (5)

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# Question Paper

Exam Date & Time: 29-Jun-2022 (10:00 AM - 01:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER M.Sc. MLT DEGREE EXAMINATION - JUNE/JULY 2022

SUBJECT: MLT5006 - HEMATOLOGY AND CLINICAL PATHOLOGY

(SPECIALIZATION: CLINICAL BIOCHEMISTRY / HAEMATOLOGY AND IMMUNOHAEMATOLOGY / MICROBIOLOGY AND IMMUNOLOGY)  
(2021 SCHEME)

Marks: 100

Duration: 180 mins.

Answer all the questions.

Draw diagrams wherever necessary.

- 1) Define and Classify leukemia. Discuss molecular defect, clinical symptoms and lab diagnosis of chronic myeloid leukemia. (20)  
(2+6+5+7 = 20 marks)
- 2) Define hemostasis. Elaborate role of blood vessel, platelets, coagulation factor and fibrinolytic system involved in normal haemostatic mechanism. (20)  
(2+5+5+5+3 = 20 marks)
- 3A) Define blood. Mention different components of blood. Discuss different types of leucocytes. (10)  
(2+3+5 = 10 marks)
- 3B) Explain anemia in systemic disorders due to blood loss and renal failure. (10)
- 3C) Enumerate different chemical analysis of urine. Discuss on patient instructions given to collect urine sample for microbiologic culture test. Write a short notes on two abnormal cast and its significance. (10)  
(4+3+3 = 10 marks)
- 3D) Explain normal hemostasis and explain diagnostic approach to bleeding disorders. (10)  
(5+5 = 10 marks)
- 4A) Explain the structure of erythrocytes and add a note on poikilocytosis. (5)
- 4B) Discuss clinical symptoms and lab diagnosis of acute myeloid leukemia. (5)
- 4C) Discuss on primary and secondary hemostasis. (5)
- 4D) Explain abnormal morphology of spermatozoa. (5)

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