

Question Paper

Exam Date & Time: 18-Jun-2024 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER M.Sc. MLT DEGREE EXAMINATION - JUNE 2024

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.

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| 1) | Define Transcription. Explain in detail the process of transcription and post transcriptional modifications processing in eukaryotes. | (20) |
| 2) | Explain different types of vectors used in rDNA technology, detail with procedure. | (20) |
| 3A) | Explain genomic organization of eukaryotic chromosome. | (10) |
| 3B) | Explain prenatal diagnosis of genetic disease. | (10) |
| 3C) | Explain the principle, procedure and application of FISH technique. | (10) |
| 3D) | Explain the cloning methods in detail. | (10) |
| 4A) | Explain DNA fingerprinting. | (5) |
| 4B) | Explain the features and stages of meiosis. | (5) |
| 4C) | Explain DNA repair mechanisms. | (5) |
| 4D) | Explain Phenylketonuria. | (5) |

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Question Paper

Exam Date & Time: 20-Jun-2024 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER M.Sc. MLT DEGREE EXAMINATION - JUNE 2024

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 haematopoiesis. Elaborate different stages in myelopoiesis. Distinguish granulocyte and agranulocyte. (20)
(2+10+8 = 20 marks)
- 2) Define and classify leukemia. Discuss molecular defect, clinical symptoms and lab diagnosis of chronic myeloid leukemia. (20)
(2+6+5+7 = 20 marks)
- 3A) Define anemia. Explain morphological and etiological classification of anemia. (10)
(3+3+4 = 10 marks)
- 3B) Explain nonneoplastic disorders of WBC. Add a note on leukemoid reaction. (10)
(6+4 = 10 marks)
- 3C) Discuss on Intrinsic and extrinsic pathways of coagulation. Name tests to detect the defects in these pathway. (10)
(4+3+3 = 10 marks)
- 3D) Explain clinical significance and microscopic examination of synovial fluid and findings. (10)
- 4A) Elaborate different stages in myelopoiesis. (5)
- 4B) Explain biosynthesis and degradation of hemoglobin. (5)
- 4C) Write the principle and clinical significance of bleeding time and clotting time. (5)
- 4D) Mention different types and precaution taken during urine sample collection. Mention two preservatives used. (5)

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