

Question Paper

Exam Date & Time: 05-Jan-2023 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD SEMESTER M. Sc. MLT (MICROBIOLOGY & IMMUNOLOGY DEGREE EXAMINATION - JANUARY 2023)
SUBJECT: MLT6101 - SYSTEMATIC BACTERIOLOGY AND MYCOLOGY
(2021 SCHEME)

Systematic Bacteriology and Mycology [MLT6101]

Marks: 100

Duration: 180 mins.

Answer all the questions.

- 1) Classify diarrheagenic *E. coli*. Explain the pathogenesis, clinical manifestations, and laboratory diagnosis of diarrhoea. Add a note on treatment. (20)
- 2) Explain the pathogenesis and laboratory diagnosis of aspergillosis. Add a note on its prevention and management. (20)
- 3A) Explain pathogenesis and laboratory diagnosis of pneumococci. (10)
- 3B) Explain the pathogenesis and Laboratory diagnosis of pulmonary tuberculosis. (10)
- 3C) Classify dermatophytes. Explain the pathogenesis and laboratory diagnosis of dermatophytosis. (10)
- 3D) Define Mycetoma. Explain the pathogenesis and laboratory diagnosis of mycetoma. (10)
- 4A) Explain the pathogenesis of cholera. (5)
- 4B) Explain the pathogenesis of typhoid fever. (5)
- 4C) Explain the basic biology of fungi. (5)
- 4D) Explain the laboratory diagnosis of syphilis. (5)

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Exam Date & Time: 05-Jan-2023 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD SEMESTER M.Sc. MLT (CLINICAL BIOCHEMISTRY) DEGREE EXAMINATION - JANUARY 2023
SUBJECT: MLT6201 - APPLIED BIOCHEMISTRY - I
(2021 SCHEME)

Marks: 100

Duration: 180 mins.

Answer all the questions.

- 1) Explain mechanism of acid base balance. Explain the mechanism of action of hormones. (20)
- 2) Discuss anemia due to vitamin B9 and B12 deficiency. (20)
- 3A) List the different methods of separation of proteins and explain separation of serum protein by electrophoresis. (10)
- 3B) Enumerate various thyroid disorders and the antibodies related to thyroid disorders. (10)
- 3C) Define and List Oncofetal Antigens. Explain function and clinical significance of Beta HCG. (10)
- 3D) Explain Sickle cell disease and its detection methods. (10)
- 4A) Explain the functions and clinical significance of calcium and Magnesium. (5)
- 4B) List Neurobiomarker and Explain any two neurobiomarker in brief. (5)
- 4C) List the intestinal function test and Explain any two in brief. (5)
- 4D) Define isoenzymes. Explain clinical significance of lactate dehydrogenase (LDH). (5)

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MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD SEMESTER MSc MLT (HAEMATOLOGY & IMMUNOHAEMATOLOGY) DEGREE EXAMINATION - JANUARY 2023
SUBJECT: MLT6401- HEMATOLOGICAL DISORDERS
(2021 SCHEME)

Answer ALL questions.
Draw diagrams wherever necessary.

Marks: 100

Duration: 180 mins.

- 1) Compare and contrast lab diagnosis of anemia due to increased destruction and anemia due to decreased production (20)
(10+10 = 20 marks)
- 2) Explain pathophysiology, clinical symptoms, laboratory diagnostic approach of Multiple myeloma. Note on recent advances in the diagnosis of Multiple myeloma. (20)
- 3A) Explain pathophysiology and laboratory diagnosis of Chronic myeloid leukemia (10)
(2+8 = 10 marks)
- 3B) Explain pathophysiology, clinical symptoms and lab diagnosis of DIC. (10)
(3+2+5 = 10 marks)
- 3C) List different types of analyzers in hematology. Explain working principle of semi automated urine analyzer. Name the parameter examined in Urinalysis. (10)
(3+4+3 = 10 marks)
- 3D) List second line investigations for bleeding disorder. Explain mixing study with example. (10)
(5+5 = 10 marks)
- 4A) List the test for diagnosis of sickle cell anemia. Explain any one in brief. (5)
- 4B) Design a Concept map for identification of hereditary spherocytosis. (5)
- 4C) Discuss pathophysiology and laboratory diagnosis of Essential thrombocythemia. (5)
- 4D) List laboratory investigations for vWD, explain ANY ONE in brief. (5)
(2+3 = 5 marks)

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Question Paper

Exam Date & Time: 07-Jan-2023 (10:00 AM - 12:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD SEMESTER M.Sc. MLT ((CLINICAL BIOCHEMISTRY)/(MICROBIOLOGY & IMMUNOLOGY)/(HAEMATOLOGY & IMMUNOLOGY)) DEGREE EXAMINATION - JANUARY 2023

SUBJECT: MLT6011 - HISTOPATHOLOGY AND CYTOLOGY TECHNIQUES
(2021 SCHEME)

Answer ALL questions.

Draw diagrams wherever necessary

Marks: 50

Duration: 120 mins.

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| 1) | Explain H and E staining, explain causes and remedies of improper staining | (20) |
| 2) | Explain quality management in histopathology and cytology lab | (10) |
| 3) | Explain sampling techniques in cytology, Summarize on commonly used fixatives in cytology and fixation methods in cytology | (10) |
| 4A) | Explain processing of Museum Specimens | (5) |
| 4B) | Explain enzyme types and application of enzyme histochemistry | (5) |

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Question Paper

Exam Date & Time: 07-Jan-2023 (10:00 AM - 12:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD SEMESTER M.Sc. MLT(CLINICAL BIOCHEMISTRY) DEGREE EXAMINATION - JANUARY 2023
SUBJECT: MLT6021 - BIOMEDICAL TECHNIQUES
(2021 SCHEME)

Marks: 50

Duration: 120 mins.

Answer all the questions.

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| 1) | Explain the principle, working and application of Thin Layer Chromatography with a labelled diagram | (20) |
| 2) | Explain the principle and working of flame photometer | (10) |
| 3) | Explain the principle of Mass Spectrophotometer. Add a note on its applications. | (10) |
| 4A) | Explain the protein analysis by Reverse phased HPLC method | (5) |
| 4B) | Explain the factors affecting electrophoresis | (5) |

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