Reg. No.										

MANIPAL UNIVERSITY

FIRST YEAR M.Sc. M.L.T. DEGREE EXAMINATION – JUNE 2014

SUBJECT: IMMUNOLOGY AND IMMUNOLOGICAL TECHNIQUES

Thursday, June 05, 2014

Time: 10:00 – 13:00 Hrs. Maximum Marks: 70

- **Answer all the questions.**
- **Draw diagrams if necessary.**

1A. Name the antigen presenting cells. Describe the mechanism of antigen processing and presentation.

1B. Define precipitation reaction. Describe the precipitation tests.

1C. Define cytokines. Describe the properties and functions of cytokines. Add a note on cytokine receptors.

(10 marks × 3 = 30 marks)

2. Write briefly on:

2A. Innate immunity

2B. Immunoglobins

2C. T cell assays

2D. Flow cytometry

2E. Molecular methods of histocompatibility testing

(5 marks × 5 = 25 marks)

3. Write short notes on:

3A. Cryoglobins

3B. Toxoids

3C. APCs

3D. CALT

3E. Mutation

(3 marks × 5 = 15 marks)

Reg. No.										

MANIPAL UNIVERSITY

FIRST YEAR M.Sc. M.L.T. DEGREE EXAMINATION – JUNE 2014

SUBJECT: MOLECULAR BIOLOGY AND APPLIED GENETICS

Saturday, June 07, 2014

Time: 10:00 – 13:00 Hrs. Maximum Marks: 70

- **Answer all questions.**
- **Draw diagrams wherever necessary.**

1A. Explain the process of translation of mRNA in detail.

1B. Discuss the various types of cloning vectors used in the recombinant DNA technology. Add a note on DNA library.

1C. What is mutation? Explain the site directed mutagenesis and its applications.

(10 marks × 3 = 30 marks)

2. **Write detailed notes on:**

2A. Meiosis

2B. Polymerase chain reaction

2C. Prenatal diagnosis of genetic diseases

2D. Human Genome Project

2E. Double helix structure of DNA

(5 marks × 5 = 25 marks)

3. **Write brief notes on:**

3A. Supercoiling

3B. Sex chromosome

3C. FISH

3D. Antibody diversity

3E. Mismatch DNA repair mechanism

(3 marks × 5 = 15 marks)

Reg. No.										

MANIPAL UNIVERSITY

FIRST YEAR M.Sc. M.L.T. DEGREE EXAMINATION – JUNE 2014

SUBJECT: CLINICAL PATHOLOGY AND HAEMATOLOGY

Tuesday, June 10, 2014

Time: 10:00 – 13:00 Hrs. Maximum Marks: 70

- **Answer all questions.**
- **Draw diagrams wherever necessary.**

1A. Classify hemolytic anemia. Discuss diagnostic approach to immune hemolytic anemia.

1B. Elaborate on pathophysiology, clinical symptoms and lab diagnosis of Hairy cell leukemia.

1C. Elaborate on preparation of stool for microscopic examination.

(10 marks × 3 = 30 marks)

2. Write detailed notes on:

2A. Neutrophilia

2B. Perl's Prussian blue stain

2C. Microscopic examination of urine

2D. Pathophysiology of CML

2E. Clinical manifestations of anemia

(5 marks × 5 = 25 marks)

3. Write short notes on:

3A. Sickling test

3B. Hay's test

3C. Target cells

3D. Reticulocytes

3E. Hemophilia B

(3 marks × 5 = 15 marks)

Reg. No.										

MANIPAL UNIVERSITY

FIRST YEAR M.Sc. M.L.T. DEGREE EXAMINATION – JUNE 2014

SUBJECT: IMMUNOPATHOLOGY

Thursday, June 12, 2014

Time: 10:00 – 13:00 Hrs. Maximum Marks: 80

- **Answer all the questions.**
- **Draw diagrams if necessary.**

1A. Define hypersensitivity reaction. Discuss on Antibody mediated hypersensitivity reactions.

1B. Enumerate T cell deficiency disorders and discuss any one.

1C. Define autoimmunity. Explain the mechanism of autoimmunity. Discuss on Thyroiditis.

(10 marks × 3 = 30 marks)

2. Write briefly on:

2A. Immunological features and laboratory diagnosis of HIV infection

2B. Warm and cold antibody diseases

2C. Heart transplantation

2D. Sjogren's syndrome

2E. Multiple sclerosis

2F. Glomerulonephritis

2G. Immunomodulators

(5 marks × 7 = 35 marks)

3. Write short notes on:

3A. Graft versus host relationship in pregnancy

3B. Rheumatic fever

3C. Food hypersensitivity reaction

3D. Delayed hypersensitivity reactions

3E. Agranulocytosis

(3 marks × 5 = 15 marks)

Reg. No.										

MANIPAL UNIVERSITY

FIRST YEAR M.Sc. M.L.T. DEGREE EXAMINATION – JUNE 2014

SUBJECT: CLINICAL BIOCHEMISTRY
(SPECIALIZATION: MICROBIOLOGY)

Saturday, June 14, 2014

Time: 10:00 – 13:00 Hrs. Maximum Marks: 70

- Answer ALL the questions.
- Draw diagrams wherever necessary.

1A. What are lipoproteins? Discuss the various types of hyperlipoproteinemias.

1B. What is quality control? Explain the internal quality control procedures.

1C. What are hormones? Explain the mechanism of action of hormones.

(10 marks × 3 = 30 marks)

2. **Write detailed notes on:**

2A. Hazards from dangerous chemicals

2B. Regulation of blood glucose

2C. Tests for renal tubular function

2D. Analysis of urine for abnormal chemical constituents

2E. Differential diagnosis of jaundice

(5 marks × 5 = 25 marks)

3. **Write brief notes on:**

3A. Serum T_3, T_4 and TSH

3B. Calibration of volumetric flask

3C. Pancreatic amylase

3D. Determination of free HCl in gastric juice

3E. Histamine stimulation test

(3 marks × 5 = 15 marks)

Reg. No.										

MANIPAL UNIVERSITY

FIRST YEAR M.Sc. M.L.T. DEGREE EXAMINATION – JUNE 2014

SUBJECT: GENERAL MICROBIOLOGY
(SPECIALIZATION: BIOCHEMISTRY)

Saturday, June 14, 2014

Time: 10:00 – 13:00 Hrs. Maximum Marks: 70

- **Answer all Questions.**
- **Draw diagrams wherever necessary.**

1A. Discuss gram positive and gram negative cell wall. Add a note on synthesis of peptidoglycan.

1B. Define and classify sterilisation. Write in detail about moist heat sterilisation.

1C. What is bacterial conjugation? Discuss different types of bacterial conjugation.

(10 marks × 3 = 30 marks)

2. Write detailed notes on:

2A. Antiviral agents

2B. Fluorescence microscope

2C. Bacterial growth curve

2D. Plasmids

2E. Flagella

(5 marks × 5 = 25 marks)

3. Write short notes on:

3A. Turbidistat

3B. Enriched media

3C. RCM

3D. MBC

3E. Freeze etching

(3 marks × 5 = 15 marks)

Reg. No.										

MANIPAL UNIVERSITY

FIRST YEAR M.Sc. M.L.T. DEGREE EXAMINATION – JUNE 2014

SUBJECT: BIOMEDICAL TECHNIQUES

Monday, June 16, 2014

Time: 10:00 – 11: 30 Hrs. Maximum Marks: 40

- **Answer all questions.**
- **Draw diagrams if necessary.**

1. Classify chromatography techniques. Explain about principle, requirements and applications of ion exchange chromatography.

(3+3+6+3 = 15 marks)

2. Write detailed notes on.

2A. Solubilizers used in electrophoresis

2B. Solid scintillation counter

2C. Paper electrophoresis

2D. Atomic emission spectrophotometry

2E. High energy compounds

(5 marks × 5 = 25 marks)