

**MANIPAL ACADEMY OF HIGHER EDUCATION**  
**SECOND YEAR M.Sc. M.L.T. DEGREE EXAMINATION – MAY/JUNE 2018**  
**SUBJECT: APPLIED BIOCHEMISTRY**  
**(BIOCHEMISTRY SPECIALIZATION)**

Friday, June 01, 2018

Time: 10:00 – 13:00 Hrs.

Maximum Marks: 70

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- ✍ **Answer ALL questions.**
- ✍ **Draw diagrams wherever necessary.**

1. What are the acute phase proteins? Discuss the determination, interpretation and clinical significance of C-reactive protein.
2. Discuss the acid base imbalance and associated disorders.

(15 marks × 2 = 30 marks)

3. **Write detailed notes on:**

- 3A. Prions
- 3B. Amphetamine
- 3C. DDT
- 3D. Diagnosis of HIV infection
- 3E. Biochemistry of ageing

(5 marks × 5 = 25 marks)

4. **Write brief notes on:**

- 4A. Alzheimer's disease
- 4B. Cadmium
- 4C. HIV genes
- 4D. Capsicum(Chillies)
- 4E. Cannabis sativa

(3 marks × 5 = 15 marks)



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## MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND YEAR M. Sc. M.L.T. DEGREE EXAMINATION – MAY/JUNE 2018

SUBJECT: VIROLOGY AND PARASITOLOGY  
(MICROBIOLOGY & IMMUNOLOGY SPECIALIZATION)

Friday, June 01, 2018

Time: 10:00 – 13:00 Hrs.

Maximum Marks: 70

✍ Answer ALL questions.

✍ Draw suitable diagrams wherever necessary.

1A. Describe the life cycle of malarial parasite. Discuss the pathogenesis and laboratory diagnosis of malarial infection.

1B. Classify Arboviruses with examples. Discuss the etio-pathogenesis and lab diagnosis of Dengue.

(15 marks × 2 = 30 marks)

2. Write detailed notes on:

2A. Rota viral diarrhoea

2B. Adenovirus

2C. Genital herpes

2D. Trypanosomiasis

2E. Pathogenesis of *Paragonimus westermani*

(5 marks × 5 = 25 marks)

3. Write short notes on:

3A. Protozoan causing meningoencephalitis in swimmers

3B. Inclusions of HSV

3C. Surface receptors of HIV

3D. *Isospora belli*

3E. Anti HBsAG

(3 marks × 5 = 15 marks)



**MANIPAL ACADEMY OF HIGHER EDUCATION****SECOND YEAR M. Sc. M.L.T. DEGREE EXAMINATION – MAY/JUNE 2018****SUBJECT: GENERAL MICROBIOLOGY  
(MICROBIOLOGY & IMMUNOLOGY SPECIALIZATION)**

Monday, May 28, 2018

Time: 10:00 – 13:00 Hrs.

Maximum Marks: 70

✍ **Answer ALL questions.**

✍ **Draw suitable diagrams wherever necessary.**

1A. Classify sterilization with example. Discuss the working principle of autoclave. Write a note on Sterilization control.

1B. Discuss in detail Antibiotic susceptibility testing. Add a note on automated methods for AST.  
(15 marks × 2 = 30 marks)

2. **Write detailed notes on:**

2A. Bacterial growth curve

2B. Processing of clinical sample for diagnosing of enteric pathogens

2C. IMViC reactions

2D. Electron microscopy

2E. Quality control in microbiology

(5 marks × 5 = 25 marks)

3. **Write short notes on:**

3A. Koch's postulates

3B. Selective media

3C. Bacterial fimbriae

3D. Chemostat and turbidostat

3E. Negative staining

(3 marks × 5 = 15 marks)



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# MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND YEAR M.Sc. M.L.T. DEGREE EXAMINATION – MAY/JUNE 2018

SUBJECT: CLINICAL BIOCHEMISTRY  
(BIOCHEMISTRY SPECIALIZATION)

Monday, May 28, 2018

Time: 10:00 – 13:00 Hrs.

Maximum Marks: 70

- ✍ **Answer ALL questions.**
- ✍ **Draw diagrams wherever necessary.**

1. Discuss urinalysis for abnormal chemical constituents.
2. What are the components of total quality management? Discuss the internal quality control procedures.

(15 marks × 2 = 30 marks)

3. **Write detailed notes on:**

- 3A. Regulation of blood glucose
- 3B. Renal tubular function tests
- 3C. Discrete analyzers
- 3D. Liver enzymes and their diagnostic importance
- 3E. First aid management of accidents in the laboratory

(5 marks × 5 = 25 marks)

4. **Write brief notes on:**

- 4A. Handling and disposal of chemical waste
- 4B. Calibration of volumetric flask
- 4C. Oxidative phosphorylation
- 4D. Histamine stimulation test for gastric function
- 4E. Blood buffer system

(3 marks × 5 = 15 marks)



**MANIPAL ACADEMY OF HIGHER EDUCATION**  
**SECOND YEAR M. Sc. M.L.T. DEGREE EXAMINATION – MAY/JUNE 2018**  
**SUBJECT: SYSTEMIC BACTERIOLOGY AND MYCOLOGY**  
**(MICROBIOLOGY & IMMUNOLOGY SPECIALIZATION)**

Wednesday, May 30, 2018

Time: 10:00 – 13:00 Hrs.

Maximum Marks: 70

✍ **Answer ALL questions.**

✍ **Draw suitable diagrams wherever necessary.**

1A. Classify mycobacteria. Describe pathogenesis, laboratory diagnosis and prophylaxis of pulmonary tuberculosis.

1B. Classify mycoses. Discuss pathogenesis and laboratory diagnosis of Candidiasis.

(15 marks × 2 = 30 marks)

2. **Write detailed notes on:**

2A. Morphology and culture characteristics of Aspergillus species.

2B. Describe the pathogenesis of diphtheria.

2C. Pathogenesis of trichophyton infection.

2D. Explain the pathogenesis and lab diagnosis of bubonic plague.

2E. Discuss the virulence factors of pseudomonas and infections caused by Pseudomonas.

(5 marks × 5 = 25 marks)

3. **Write short notes on:**

3A. Virulence factors of staphylococcus

3B. TPHA

3C. Antifungal agents

3D. El Tor vibrio

3E. Elek's gel test

(3 marks × 5 = 15 marks)



**MANIPAL ACADEMY OF HIGHER EDUCATION****SECOND YEAR M.Sc. M.L.T. DEGREE EXAMINATION – MAY/JUNE 2018****SUBJECT: METABOLIC REGULATIONS AND INBORN ERRORS OF METABOLISM  
(BIOCHEMISTRY SPECIALIZATION)**

Wednesday, May 30, 2018

Time: 10:00 – 13:00 Hrs.

Maximum Marks: 70

✍ **Answer ALL questions.**

✍ **Draw diagrams wherever necessary.**

1. Discuss urea cycle with energetics and regulation. Add a note on importance of blood urea.
2. Define and classify enzyme. Explain factors affecting enzyme activity. Add a note on isoenzymes.

(15 marks × 2 = 30 marks)

3. **Write detailed notes on:**

- 3A. Metabolism of Chylomicrons
- 3B. Biochemical function of Biotin
- 3C. Aerobic glycolysis
- 3D. Isoenzymes
- 3E. Regulation of plasma calcium

(5 marks × 5 = 25 marks)

4. **Write short notes on:**

- 4A. Lesch Nihan syndrome
- 4B. Disorders of branched chain amino acids
- 4C. Production of glucose from starch metabolism
- 4D. Reactions of citric acid cycle
- 4E. Importance of glycine

(3 marks × 5 = 15 marks)

