| Reg. No. | | | | | | | | | | |
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# MANIPAL UNIVERSITY

## SECOND YEAR M. Sc. M.L.T. DEGREE EXAMINATION – MAY/JUNE 2012

### SUBJECT: VIROLOGY AND PARASITOLOGY
### (MICROBIOLOGY SPECIALIZATION)

Friday, June 01, 2012

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

- **Answer ALL the questions.**
- **Answer the following questions with the help of neat labeled diagrams wherever necessary.**

1. Describe the pathogenesis and laboratory diagnosis of Measles virus.

(10+5 = 15 marks)

2. Discuss the life cycle of the malarial parasite in the intermediate host and add a note on the immune response against the parasite.

(10+5 = 15 marks)

**3. Write briefly on:**

3A. Laboratory diagnosis of ascariasis

3B. Bovine spongiform encephalitis

3C. Antigenic shift and antigenic drift seen in Influenza virus

3D. Congenital Rubella

3E. Structure of HIV

(5×5 = 25 marks)

**4. Write short notes on:**

4A. Kala azar

4B. Inclusions of HSV

4C. Immunoprophylaxis of polio

4D. Seromarkers in acute hepatitis B infection

4E. DEC provocation test

(3×5 = 15 marks)

| Reg. No. | | | | | | | | | | |
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# MANIPAL UNIVERSITY

## SECOND YEAR M.Sc. M.L.T. DEGREE EXAMINATION – MAY/JUNE 2012

### SUBJECT: APPLIED BIOCHEMISTRY
(BIOCHEMISTRY SPECIALIZATION)

Friday, June 01, 2012

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

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

1. Discuss house hold chemicals.

(15 marks)

2. Explain about β amyloids and its role in Alzheimer's disease.

(15 marks)

**3. Write detailed notes on:**

3A. Haemoglobinopathy
3B. C- reactive proteins
3C. Carbamates
3D. Antihistamines
3E. Cocaine

(5×5 = 25 marks)

**4. Write short notes on:**

4A. Wilson's Diseases
4B. Anion gap
4C. Hereditary Spherocytosis
4D. Alpha-fetoproteins
4E. Cadmium

(3×5 = 15 marks)

| Reg. No. | | | | | | | | | | |
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# MANIPAL UNIVERSITY

## SECOND YEAR M. Sc. M.L.T. DEGREE EXAMINATION – DECEMBER 2012

### SUBJECT: GENERAL MICROBIOLOGY
**(MICROBIOLOGY SPECIALIZATION)**

Monday, December 17, 2012

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

- **Answer ALL the questions.**
- **Answer the following questions with the help of neat labeled diagrams wherever necessary.**

1. Describe the method of gene transfer by a bacteriophage. Discuss its significance in acquisition of virulence factors.

(15 marks)

2. Classify sterilization methods. Discuss in detail moist heat sterilization.

(15 marks)

3. **Write briefly on:**

3A. Compound microscope
3B. Kirby Bauer method of disk diffusion
3C. Ultra structure of gram negative cell wall
3D. Resistance to Beta-lactam antibiotics
3E. IMViC reactions

(5×5 = 25 marks)

4. **Write short notes on:**

4A. Nutritional classification of bacteria
4B. Transport media
4C. Structure of bacterial flagellum
4D. Pasteurization
4E. Ziehl-Neelsen staining

(3×5 = 15 marks)

| Reg. No. | | | | | | | | | | |
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# MANIPAL UNIVERSITY

## SECOND YEAR M.Sc. M.L.T. DEGREE EXAMINATION – DECEMBER 2012

### SUBJECT: CLINICAL BIOCHEMISTRY
(BIOCHEMISTRY SPECIALIZATION)

Monday, December 17, 2012

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

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

1. Discuss the principles and practice of quality control in a clinical biochemistry laboratory. (15 marks)

2. Define and classify diabetes mellitus. Explain the various metabolic changes and associated complications of diabetes mellitus. Add a note on Advanced Glycation End products. (15 marks)

3. **Write short notes on:**

3A. SerumT3, T4 and TSH with their clinical significance
3B. Renal glomerular function tests
3C. Serum bilirubin estimation with clinical correlation
3D. First aid management of accidents in the laboratory
3E. Analysis of abnormal chemical constituents of urine

(5×5 = 25 marks)

4. **Write brief notes on:**

4A. Discrete analysers
4B. Calibration of volumetric flask
4C. Pancreatic amylase
4D. Disposal of radioactive waste
4E. Blood gas analysis

(3×5 = 15 marks)

| Reg. No. | | | | | | | | | | |
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# MANIPAL UNIVERSITY

## SECOND YEAR M. Sc. M.L.T. DEGREE EXAMINATION – DECEMBER 2012

### SUBJECT: SYSTEMATIC BACTERIOLOGY AND MYCOLOGY
**(MICROBIOLOGY SPECIALIZATION)**

Tuesday, December 18, 2012

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

- **Answer ALL the questions.**
- **Answer the following questions with the help of neat labeled diagrams wherever necessary.**

1. Enumerate the spirochetes of medical importance. Explain the laboratory diagnosis of syphilis in the secondary stage.

(15 marks)

2. Discuss deep mycoses with special reference to Histoplasma capsulatum.

(15 marks)

3. **Write briefly on:**

3A. Laboratory diagnosis of Candida albicans
3B. Mycetoma
3C. Laboratory diagnosis of Haemophilus influenzae meningitis
3D. Pathogenesis of diarrhea causing E coli
3E. Anaerobiosis

(5×5 = 25 marks)

4. **Write short notes on:**

4A. Lepromin test
4B. Germ tube test
4C. Pityriasis versicolor
4D. Clinical manifestations of anthrax
4E. Pathogenesis of acute rheumatic fever

(3×5 = 15 marks)

| Reg. No. | | | | | | | | | | |
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# MANIPAL UNIVERSITY

## SECOND YEAR M.Sc. M.L.T. DEGREE EXAMINATION – DECEMBER 2012

### SUBJECT: METABOLIC REGULATIONS AND INBORN ERRORS OF METABOLISM
**(BIOCHEMISTRY SPECIALIZATION)**

Tuesday, December 18, 2012

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

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

1. Enumerate the classes of enzymes. Explain their mechanism of action. Discuss the factors that influence their action.

(15 marks)

2. What are polysaccharides? Explain the utilization of the dietary starch in our body for generation of energy.

(15 marks)

3. **Write short notes on the following:**

3A. Biochemical functions and deficiency diseases of thiamine
3B. Iron metabolism
3C. Deamination reactions
3D. Ketone bodies
3E. Clinical significance of thyroid hormones

(5×5 = 25 marks)

4. **Write brief notes on the following:**

4A. Orotic aciduria
4B. Phenylketonuria
4C. Chloride
4D. Lipid digestion
4E. Salvage pathway for purines

(3×5 = 15 marks)

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# MANIPAL UNIVERSITY

## SECOND YEAR M. Sc. M.L.T. DEGREE EXAMINATION – DECEMBER 2012

### SUBJECT: VIROLOGY AND PARASITOLOGY
### (MICROBIOLOGY SPECIALIZATION)

Wednesday, December 19, 2012

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

✍ **Answer the following questions with the help of neat labeled diagrams wherever necessary.**

1. Describe the pathogenesis and immunoprophylaxis of Rabies virus.

(10+5 = 15 marks)

2. With the help of a diagram describe the structure of HIV and comment on the genome of the virus. Describe the opportunistic infections seen in AIDS.

(4+5+6 = 15 marks)

3. **Write briefly on:**

3A. Kyasanur forest disease
3B. Laboratory diagnosis of Rubella
3C. Laboratory diagnosis of Ancylostoma duodenale
3D. Neurocysticercosis
3E. Slow viral disease

(5×5 = 25 marks)

4. **Write short notes on:**

4A. Sporozoan parasites causing protractile diarrhea
4B. Rotavirus
4C. Laboratory diagnosis of Influenza type A
4D. Protozoan parasites causing meningoencephalitis in swimmers
4E. Properties of Togaviridae.

(3×5 = 15 marks)

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# MANIPAL UNIVERSITY

## SECOND YEAR M.Sc. M.L.T. DEGREE EXAMINATION – DECEMBER 2012

### SUBJECT: APPLIED BIOCHEMISTRY
**(BIOCHEMISTRY SPECIALIZATION)**

Wednesday, December 19, 2012

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

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

1. Write in detail about factors modifying the action of poison.

(15 marks)

2. Discuss biochemical derangement and diagnosis of haemoglobinopathy.

(15 marks)

3. **Write detailed notes on:**

3A. Mercury poisoning
3B. HIV genome
3C. Alpha-fetoprotein
3D. Barbiturates
3E. Prions

(5×5 = 25 marks)

4. **Write short notes on:**

4A. Tobacco
4B. DDT
4C. Schilling test
4D. Respiratory alkalosis
4E. Dehydration

(3×5 = 15 marks)

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# MANIPAL UNIVERSITY

## SECOND YEAR M.Sc. M.L.T. DEGREE EXAMINATION – MAY/JUNE 2012

### SUBJECT: CLINICAL BIOCHEMISTRY
(BIOCHEMISTRY SPECIALIZATION)

Monday, May 28, 2012

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

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

1. What are the functions of kidney? Enumerate the kidney disorders and their causes. Discuss the diagnostic tests for renal tubular dysfunction and their interpretations.

(15 marks)

2. What are the preanalytical variables which can cause errors in clinical laboratory testing? Discuss about the measures and procedures to be taken to control the errors due to preanalytical and analytical variables.

(15 marks)

**3. Write short notes on the following:**

3A. Carbohydrate metabolism in Diabetes mellitus
3B. Tubeless gastric function tests
3C. Hazards from dangerous chemicals
3D. Bicarbonate buffer system
3E. Proteinuria

(5×5 = 25 marks)

**4. Write brief notes on:**

4A. Obstructive jaundice
4B. Disposal of laboratory chemical waste
4C. Thyroid autoantibodies
4D. Non-invasive tests for pancreatic function
4E. Transaminases

(3×5 = 15 marks)

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# MANIPAL UNIVERSITY

## SECOND YEAR M. Sc. M.L.T. DEGREE EXAMINATION – MAY/JUNE 2012

### SUBJECT: GENERAL MICROBIOLOGY
(MICROBIOLOGY SPECIALIZATION)

Monday, May 28, 2012

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

- **Answer ALL the questions.**
- **Answer the following questions with the help of neat labeled diagrams wherever necessary.**

1. Define MIC and MBC. Describe the methods to detect MIC of an antibiotic for a given bacterium.

(15 marks)

2. Discuss in detail biological safety measures employed in clinical microbiology laboratory.

(15 marks)

**3. Write briefly on:**

3A. Processing of specimen for diagnosis of fungal infection

3B. Differential staining methods

3C. Dry heat sterilization

3D. Water culture methods

3E. Bacterial resistance to beta-lactam antibiotics

(5×5 = 25 marks)

**4. Write short notes on:**

4A. Morphological classification of bacteria

4B. Lyophilisation

4C. E-test

4D. Enrichment media

4E. Urease test

(3×5 = 15 marks)

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# MANIPAL UNIVERSITY

## SECOND YEAR M.Sc. M.L.T. DEGREE EXAMINATION – MAY/JUNE 2012

### SUBJECT: METABOLIC REGULATIONS AND INBORN ERRORS OF METABOLISM

**(BIOCHEMISTRY SPECIALIZATION)**

Wednesday, May 30, 2012

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

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

1. Discuss metabolism of cholesterol and its regulation. Add a note on atherosclerosis.

(15 marks)

2. Write important diagnostic enzymes. Discuss isoenzymes with their clinical significance.

(15 marks)

**3. Write detailed notes on:**

3A. Regulation of glycolysis

3B. Gout

3C. Significance of HMP shunt

3D. HDL cholesterol

3E. Metabolic disorders of urea cycle

(5×5 = 25 marks)

**4. Write short notes on:**

4A. Beriberi

4B. Toxicity of ammonia

4C. Lactose intolerance

4D. Rickets

4E. Sodium

(3×5 = 15 marks)

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# MANIPAL UNIVERSITY

## SECOND YEAR M. Sc. M.L.T. DEGREE EXAMINATION – MAY/JUNE 2012

### SUBJECT: SYSTEMATIC BACTERIOLOGY AND MYCOLOGY
(MICROBIOLOGY SPECIALIZATION)

Wednesday, May 30, 2012

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

- **Answer ALL the questions.**
- **Answer the following questions with the help of neat labeled diagrams wherever necessary.**

1. Explain the virulence factors, clinical features and laboratory diagnosis of Staphylococcus aureus infection. Add a note on its antibiotic resistance.

(15 marks)

2. Classify superficial mycoses with examples. Discuss dermatophytosis in detail.

(15 marks)

**3. Write briefly on:**

3A. Laboratory diagnosis of diphtheria

3B. Helicobacter pylori

3C. Scrub typhus

3D. Mycotic mycetoma

3E. Histoplasma capsulatum

(5×5 = 25 marks)

**4. Write short notes on:**

4A. Nagler's test

4B. Germ tube test

4C. Selective medium for V cholerae

4D. Lepromin test

4E. Piedra

(15 marks)