

## MANIPAL UNIVERSITY

MD (BIOCHEMISTRY) DEGREE EXAMINATION – APRIL 2015

SUBJECT: PAPER I: GENERAL BIOCHEMISTRY &amp; INSTRUMENTATION

Wednesday, April 01, 2015

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer ALL the questions.**

✍ **Long Essays:**

1. Discuss immunoglobulins and the methods of their estimation in biological fluids. (15 marks)

2. Give an account of applications of radioisotopes in medicine. (15 marks)

3. **Write short notes on:**

3A. Cell fractionation

3B. Isoenzymes

3C. Structure - function relationship of hemoglobin

3D. Glycosaminoglycans

3E. NMR spectroscopy

3F. Fluorimetry

3G. Ion exchange chromatography

3H. RFLP

3I. t- RNA

3J. Mechanisms of transport across membranes

(7 marks × 10 = 70 marks)



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## MD (BIOCHEMISTRY) DEGREE EXAMINATION – APRIL 2015

## SUBJECT: PAPER II: METABOLISM AND NUTRITION

Thursday, April 02, 2015

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ Answer ALL the questions.

✍ Long Essays:

1. Describe the protein turnover and utilization.

(15 marks)

2. Discuss the formation and fate of acetyl CoA.

(15 marks)

3. Write short notes on:

3A. Significance of HMP shunt pathway

3B. Fatty liver

3C. Dietary fibres

3D. Calcium homeostasis

3E. Polyamines

3F. Protein energy malnutrition

3G. Gout

3H. Deficiency and excess of Vitamin D

3I. Formation and fate of catecholamines

3J. Fatty acid synthase complex

(7 marks × 10 = 70 marks)



## MANIPAL UNIVERSITY

## MD (BIOCHEMISTRY) DEGREE EXAMINATION – APRIL 2015

## SUBJECT: PAPER III: CLINICAL BIOCHEMISTRY

Saturday, April 04, 2015

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ Answer ALL the questions.

✍ Long Essays.

1. Describe the thyroid function tests. What are the laboratory tests which needs to be done to diagnose and manage a patient with acute thyroiditis?

(15 marks)

2. Describe metabolism and functions of vitamin D. What are the recent advances regarding the role of vitamin D in various diseases?

(15 marks)

3. Write short notes on:

3A. Cytokines

3B. Metabolic acidosis

3C. Significance of HbA1c

3D. CSF analysis

3E. Wilson's disease

3F. Triple marker for antenatal screening

3G. Phenylketonuria

3H. D-Dimer

3I. Diagnostic tests in acute pancreatitis

3J. Biochemical tests for fertility in males

(7 marks × 10 = 70 marks)



# MANIPAL UNIVERSITY

## MD (BIOCHEMISTRY) DEGREE EXAMINATION – APRIL 2015

### SUBJECT: PAPER IV: MOLECULAR BIOLOGY, BIOTECHNOLOGY & RECENT ADVANCES IN CLINICAL BIOCHEMISTRY

Monday, April 06, 2015

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer ALL the questions.**

✍ **Long Essays.**

1. A Biochemistry laboratory, doing 5000 tests a day, plans to start an Internal and External Quality assessment program.

Design the daily, weekly and monthly tasks which need to be done to ensure that the laboratory is maintaining a good QC program.

(15 marks)

2. Describe the various DNA damage and repair mechanisms.

(15 marks)

3. **Write short notes on:**

3A. Study Design

3B. Transcription

3C. Post translational Modifications

3D. Genetic code

3E. FISH

3F. Restriction endonucleases

3G. Calculating specificity and sensitivity of a test

3H. Microarray

3I. Oncogenes

3J. Inherited Mitochondrial disorders

(7 marks × 10 = 70 marks)

