MANIPAL UNIVERSITY

M. Sc. (FINAL) BIOCHEMISTRY DEGREE EXAMINATION – FEBRUARY 2008

PAPER I: CHEMICAL NATURE AND METHODS OF STUDY OF BIOCHEMICAL COMPOUNDS AND ENZYMES

Monday, February 04, 2008

Time available: 3 Hours | Maximum Marks: 100

- **Answer any FIVE Questions.**
- **All questions carry equal Marks.**
- **Write answers that are brief, clear, relevant and legible.**
- **Illustrate your answers with neatly drawn and correctly labelled diagrams wherever appropriate.**

1. What are the salient features of different forms of DNA? How DNA is isolated from the tissues?

2. Write briefly on:

2A. Ion exchange chromatography.

2B. Application of radio active isotopes in metabolic studies.

2C. Histones.

2D. Mucopolysaccharides.

3. Give an account of chemistry, classification and physiological properties of prostaglandins.

4. Discuss the structure and function of different types of immunoglobulins.

5. Discuss the methods of purification of an enzyme from any source and discuss the criteria of purity.

6. Write briefly on:

6A. Polyamines.

6B. High energy compounds.

6C. Electron transport chain.

6D. Write the structure of:

i) Cholesterol

ii) Sucrose

iii) ATP

iv) NAD

v) Arginine

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PAPER II: INTERMEDIARY METABOLISM

Tuesday, February 05, 2008

Time available: 3 Hours | Maximum Marks: 100

- **Answer any FIVE Questions.**
- **All questions carry equal Marks.**
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1. Discuss the metabolism of lipoproteins.

2. Describe transcription process in mammalian cells. Add a note on maturation of mRNA.

3. Write short notes on:

3A. Multi enzyme complex

3B. Homocystinuria

3C. Galactosemia

3D. Glutamate dehydrogenase

4. Discuss the metabolic fates of glycine.

5. Explain how the availability of glucose affects the overall metabolism of the body.

6. Write short notes on:

6A. Catecholamine synthesis and degradation.

6B. DNA repair mechanism.

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M. Sc. (FINAL) BIOCHEMISTRY DEGREE EXAMINATION – FEBRUARY 2008

PAPER III: CLINICAL BIOCHEMISTRY AND NUTRITION

Wednesday, February 06, 2008

Time available: 3 Hours | Maximum Marks: 100

- **Answer any FIVE Questions.**
- **All questions carry equal Marks.**
- **Write answers that are brief, clear, relevant and legible.**
- **Illustrate your answers with neatly drawn and correctly labelled diagrams wherever appropriate.**

1. Give an account of vitamin A.

2. What is "Jaundice"? Discuss the various biochemical tests done to differentiate the types of jaundice.

3. Write short notes on:

3A. Thiamine

3B. Oncogenes

3C. Methemoglobin

3D. Anion gap

4. Describe the role of trace minerals in nutrition.

5A. What are tumour markers? Describe in detail the method employed for the determination of any one tumour marker and comment on its prognostic application.

5B. Discuss the biochemical changes observed in protein colorie malnutrition.

6. Write briefly:

6A. Reactive oxygen species.

6B. G-proteins.

MANIPAL UNIVERSITY

M. Sc. (FINAL) BIOCHEMISTRY DEGREE EXAMINATION – AUGUST 2008

PAPER I: CHEMICAL NATURE AND METHODS OF STUDY OF BIOCHEMICAL COMPOUNDS AND ENZYMES

Monday, August 04, 2008

Time available: 3 Hours | Maximum Marks: 100

- **Answer any FIVE Questions.**
- **All questions carry equal marks.**
- **Write answers that are brief, clear, relevant and legible.**
- **Illustrate your answers with neatly drawn and correctly labelled diagrams wherever appropriate.**

1. Describe the different types of enzyme inhibition with appropriate examples.

2. Describe the methods involved in DNA sequencing.

3. Write short notes on:

3A. Partition chromatography.

3B. Radioimmunoassay (RIA).

4. Write briefly on:

4A. Southern blotting.

4B. Flame photometry.

5A. Describe the principles and applications of ultracentrifugation.

5B. Describe different types of mutations, giving examples.

6. Describe the classification, structure and function of complex lipids.

MANIPAL UNIVERSITY

M. Sc. (FINAL) BIOCHEMISTRY DEGREE EXAMINATION – AUGUST 2008

PAPER II: INTERMEDIARY METABOLISM

Tuesday, August 05, 2008

Time available: 3 Hours | Maximum Marks: 100

- **Answer any FIVE Questions.**
- **All questions carry equal marks.**
- **Write answers that are brief, clear, relevant and legible.**
- **Illustrate your answers with neatly drawn and correctly labelled diagrams wherever appropriate.**

1. Describe the hormonal regulation of carbohydrate metabolism, emphasizing the key enzymes.

2. Write an overview of ammonia metabolism in the body.

3. Give an account of any five inborn errors associated with amino acid metabolism. Describe the biochemical tests used to detect them.

4. Explain the transcription process and its regulation.

5A. Describe the metabolic role of different lipoproteins.
5B. Write a note on dyslipoproteinmias.

6. Write short notes on:
6A. Ribosomes.
6B. Telomeres.
6C. Heat Shock proteins.
6D. Proteosomes.

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1. Describe the structure of pyridoxal phosphate and give an account of its metabolic role in human metabolism along with deficiency manifestation.

2. Describe the formation of adrenal cortical hormones and their metabolic role.

3. Give an account of daily requirement, absorption, factors affecting absorption, transport, storage, function and deficiency manifestations of iron.

4. Write short notes on:

4A. Role of calcium as second messengers.

4B. Protein caloric malnutrition.

4C. Tumour markers.

4D. Metabolic alkalosis.

5. Write briefly on:

5A. Renal rickets

5B. Bronze diabetes

5C. Vitamin E

5D. Porphyrias

6. Write short notes on:

6A. Anti metabolites.

6B. Fractional test meal.

6C. Oncogenes.

6D. Write the normal serum level and its significance of:

i) Total proteins ii) Urea iii) Creatine iv) Sodium v) Cholesterol