

Master degree in Medical Biochemistry Final examination

Paper I

30/4/2017

Time allowed three hours Total marks: 100 marks

All questions to be answered

Question I (Total marks: 25 marks)

Describe the biochemical basis of the following diseases

- 1) Maple syrup urine disease
- 2) Congenital lactic acidosis
- 3) Methemoglobinemia
- 4) Orotic aciduria
- 5) hereditary nonpolyposis colorectal cancer

Question II (Total marks: 25 marks)

- 1) Discuss laboratory diagnosis of dwarfism
- 2) Write on Mechanism of action of thyroxin
- 3) Describe CKMB isoenzyme and its laboratory uses in diagnosis of myocardial injury
- 4) Write on Na^+/K^+ -ATPase
- 5) Illustrate the clinical sequelae of disturbed gene imprinting

Question III (Total marks: 50 marks)

- 1) Outline the heat denaturation of double helix of DNA
- 2) Explain the role of polymerases I and III in DNA replication of prokaryotes
- 3) Write on termination of transcription of prokaryotic cells
- 4) Describe the initiation step of protein biosynthesis in eukaryotic cells
- 5) Discuss the gene therapy

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Paper II

4/5/2017

Time allowed three hours Total marks: 100 marks

All questions to be answered

Question I (Total marks: 30 marks)

Explain each of the following statements

- 1) Beta -oxidation in the liver is the main driving forces for gluconeogenesis
- 2) Electron transfer and ATP synthesis are tightly coupled
- 3) Glutamate is the central gateway in ammonia metabolism

Question II (Total marks: 20 marks)

Give an account on the catalytic activity and regulatory mechanism of each of the following enzymes

- 1) Hormone sensitive lipase
- 2) Pyruvate carboxylase
- 3) Carbamoyl phosphate synthetase -1
- 4) glyceraldehyde 3-phosphate dehydrogenase

Question III (Total marks: 30 marks)

Describe the following biochemical pathways and their biological importance

- 1) Synthesis and biological importance of PAF
- 2) DPG cycle
- 3) Figlue
- 4) Uric acid formation

Question IV (Total marks: 20 marks)

Discuss the following items

- 1) sulfur containing vitamins: Function and deficiency one of them (**5 marks**)
- 2) Role of vitamin A in vision (**5 marks**)
- 3) Illustrate the interplay between impact of life style on antioxidant mechanism in influencing the role of free radical generation on immune mediated signaling pathway in carcinogenesis (**10 marks**)