

APRIL 1990

304

M.Sc. DEGREE EXAMINATION IN THE FACULTY OF
MEDICINE FOR SCIENCE GRADUATES, APRIL 1990.

Preliminary

PHYSIOLOGY AND BIOCHEMISTRY

(Common to ALL Branches)

Time : Three hours.

Maximum : 100 marks.

Answer ALL the questions.

SECTION A — (60 marks)

PHYSIOLOGY

1. Describe briefly the coagulation factors. Discuss the mechanism of coagulation of blood. Add a note on Anticoagulants. (20 marks)
2. Describe the histology of the renal tubular system. Discuss the mechanism of tubular re-absorption. (20 marks)
3. Write briefly on : (5 × 4 = 20 marks)
 - (a) Entero-hepatic circulation.
 - (b) Cardiac index.
 - (c) Functions of Hypothalamus.
 - (d) Oral contraceptives.
 - (e) Functions of Iris.

SECTION B — (40 marks)

BIOCHEMISTRY

4. Name the essential aminoacids and write in brief the metabolism of any one of them. (15 marks)
5. Write short notes on any five of the following : (5 × 5 = 25 marks)
 - (a) Glycogenesis.
 - (b) Muta-rotation.
 - (c) Arachidonic acid.
 - (d) Ceruloplasmin.
 - (e) Vitamin D.
 - (f) Functions of phospholipids.

OCTOBER 1990

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M.Sc. DEGREE EXAMINATION IN THE FACULTY OF
MEDICINE FOR SCIENCE GRADUATES, OCTOBER 1990.

Preliminary

Paper II — PHYSIOLOGY AND BIOCHEMISTRY

(Common to All Branches)

Time : Three hours. Maximum : 100 marks.

Answer ALL the questions.

SECTION A — (60 marks)

(PHYSIOLOGY)

1. Draw and label the areas on the lateral surface of the cerebral hemisphere. Mention the important functions of the cerebral cortex. (20 marks)
2. What is the normal blood glucose level in man? Enumerate the various hormones that influence the blood glucose level. Briefly describe how the blood glucose level is maintained normally. (20 marks)
3. Write briefly on : (5 × 4 = 20 marks)
 - (a) Blood group systems.
 - (b) Functions of liver.
 - (c) Formation of urine.
 - (d) Androgens.
 - (e) Regulation of respiration.

SECTION B — (40 marks)

(BIOCHEMISTRY)

4. Write in detail about the digestion and absorption of lipids in gastro-intestinal tract. (15 marks)
5. Write short notes on any *five* of the following : (5 × 5 = 25 marks)
 - (a) Osmolarity.
 - (b) Thiamine in carbohydrate metabolism.
 - (c) Plasma proteins.
 - (d) Functions of Iron.
 - (e) Pancreatic amylase.
 - (f) Cholesterol.

SEPTEMBER 1991

410

M.Sc. DEGREE EXAMINATION, SEPTEMBER 1991.

(Non-Clinical — Subjects for Science Graduates)

Preliminary

(Common to all Branches)

Paper II — PHYSIOLOGY AND BIOCHEMISTRY

Time : Three hours.

Maximum : 100 marks.

Answer ALL questions.

Answer Section A and B in separate answer books.

SECTION A — (60 marks)

(PHYSIOLOGY)

1. Define reflex action. How are reflexes classified? Describe the properties of reflex arcs. (20 marks)
2. Describe the role of hypothalamus in regulating the functions of anterior and posterior pituitary gland. (20 marks)

3. Write briefly on :

- (a) Cardiac Index.
- (b) Referred pain.
- (c) GFR
- (d) PBI.
- (e) Erythroblastosis foetalis. (5 × 4 = 20 marks)

SECTION B — (40 marks)

(BIOCHEMISTRY)

4. (a) Describe the pathway of glycolysis. What is the importance of this pathway? (8 marks)
(b) What are enzymes? How do they act? Describe the influence of substrate, pH and temperature on their action. (8 marks)
5. Write notes on :
 - (a) B.M.R.
 - (b) Buffers.
 - (c) Thiamine.
 - (d) RNA.
 - (e) Serum calcium.
 - (f) Serum cholesterol. (6 × 4 = 24 marks)

M.Sc. DEGREE EXAMINATION, APRIL, 1992
(Non-Clinical - Subjects for Science Graduates)

PRELIMINARY

(Common to all Branches)

Paper II - PHYSIOLOGY AND BIOCHEMISTRY

Time: Three hours

Maximum Marks:100

Answer All questions

(Answer Section A and B in separate answer books.)

SECTION A - (60 Marks)

(PHYSIOLOGY)

1. Give an account of the hormones of the adrenal cortex, their sites of production and the regulation of their secretion. (20 Marks)
2. Describe the various stages and the factors regulating erythropoiesis. (20 Marks)
3. Write briefly on: (5x4=20 Marks)
 - a. Factors affecting gastric mobility.
 - b. E.C.F. Volume.
 - c. Functions of rods and cones.
 - d. Mechanism of micturition.
 - e. Respiratory centres.

SECTION B - (40 Marks)

(BIOCHEMISTRY)

4. a. Describe the metabolic pathway of Phenyl alanine. (8 Marks)
 - b. How is cholesterol synthesised? Name the important compounds derived from it. (8 Marks)
 5. Write notes on: (6x4=24 Marks)
 - a. D.N.A.
 - b. Serum Alkaline phosphatase.
 - c. Enzyme inhibitors.
 - d. Hexokinase.
 - e. Vitamin B₁₂
 - d. Formation of bile pigments.
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APRIL 1995

SB 323

M.Sc. (Non-Clinical) DEGREE EXAMINATION

Preliminary (Common to all Branches)

Paper II - PHYSIOLOGY AND BIO-CHEMISTRY

Time: Three hours Max. marks: 100

Answer ALL Questions

SECTION A - (60 marks)

PHYSIOLOGY

1. What are the different phases of Gastric acid secretion? Describe the mechanism of the acid secretion? (20)
2. What is the normal rate of Respiration in man? Discuss in detail the regulation of respiration. (20)
3. Write short notes on:
 - a) Action potential
 - b) Functions of leucocytes
 - c) Anterior Pituitary hormones
 - d) Normal constituents of urine
 - e) Cardiac cycle

(5x4=20)

SECTION B - (40 marks)

BIOCHEMISTRY

4. Describe the various steps involved in the aerobic Gluconolytic pathway through the citric acid cycle. (20)
5. Write short notes on:
 - a) Biological functions of B₁₂
 - b) Micelles
 - c) Diffusion and facilitated diffusion
 - d) Iodine deficiency in man
 - e) Absorption of Iron

(5x4=20)

OCTOBER 1996

PK 220

M.Sc. (Non-clinical) DEGREE EXAMINATION

Preliminary (Common to all Branches)

Paper II - PHYSIOLOGY AND BIO-CHEMISTRY

Time: Three hours

Max.marks:100

Answer All Questions

SECTION A - (60 marks)

PHYSIOLOGY

1. Mention the hormones of the posterior pituitary and describe their functions. (20)
2. Define cardiac output. How is it determined in man? Discuss the factors that regulate cardiac output. (20)
3. Write briefly on: (5x4=20)
 - (a) Mechanism of action of Anti-coagulants
 - (b) Contraceptive pills
 - (c) Functions of stomach
 - (d) Lung volumes
 - (e) Bombay blood group.

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SECTION B - (40 marks)

BIOCHEMISTRY

4. Describe in detail the steps involved in Beta oxidation of fatty acids. Discuss the energy aspects of the same. (20)
5. Write briefly on: (5x4=20)
- (a) Donnan membrane equilibrium
 - (b) Trace elements
 - (c) Functions of Vitamin B6
 - (d) Significance of H.M.P. shunt pathway
 - (e) SGOT and SGPT.
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APRIL 1997

MP 285

M.Sc.(Non-Clinical) DEGREE EXAMINATION

Preliminary (Common to all branches)

Paper II - PHYSIOLOGY AND BIO-CHEMISTRY

Time: Three hours

Max.marks:100

Answer All Questions

SECTION A - (60 marks)

PHYSIOLOGY

1. Define immunity. Describe the role of lymphocytes in immunity. Add a note on AIDS. (20)
2. Define cardiac output. Describe the factors affecting cardiac output. Add a note on variations in cardiac output. (20)
3. Write briefly on: (5x4=20)
 - (a) Role of thyroxine
 - (b) Bile salts
 - (c) Chemical regulation of respiration
 - (d) Stretch reflex
 - (e) Functions of kidney.

SECTION B - (40 marks)

BIOCHEMISTRY

4. Describe in detail the steps involved in aerobic and anaerobic glycolysis. State the differences between them along with energetics. (20)
 5. Write short notes on: (5x4=20)
 - (a) Biochemical functions of vitamin A
 - (b) Saturated and unsaturated fatty acids
 - (c) Functional classification of proteins
 - (d) Role of calcium and phosphorus in the body
 - (e) Factors affecting enzyme velocity.
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APRIL 2000

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M.Sc. (Non-Clinical) DEGREE EXAMINATION.

Preliminary (Common to all branches)

Paper II — PHYSIOLOGY AND BIOCHEMISTRY

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

SECTION A — (60 marks)

(PHYSIOLOGY)

1. What are the phases of gastric secretion? Describe in detail the cephalic phase of gastric secretion. Give the composition of gastric juice. (20)
2. What are the hormones secreted by the Adrenal Cortex? Describe in detail the functions of glucocorticoids. How is it regulated? (20)
3. Write briefly on : (5 × 4 = 20)
 - (a) Bohr effect
 - (b) P-R interval
 - (c) Inulin clearance test
 - (d) Pyramidal tracts
 - (e) Clinically used anticoagulants.

SECTION B — (40 marks)

(BIOCHEMISTRY)

4. Describe the pathway for glycogen synthesis and breakdown and indicate the role of specific hormones in its regulation. Discuss how both the pathways occurring simultaneously (futile cycle) is prevented. (20)
 5. Write briefly on :
 - (a) Fatty acid synthetase and transfer of acetyl CoA to the cytoplasm.
 - (b) Three dimensional structure of proteins.
 - (c) Factors affecting calcium absorption and role of hormones on its regulation in blood
 - (d) Conversion of folic acid to its coenzyme and its function
 - (e) Why all isoenzymes are oligomeric? (5 × 4 = 20)
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