

APRIL 2001

[KD 227]

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 is cardiac cycle? Enumerate the various events that occur during one cardiac cycle. Describe in detail the origin and spread of cardiac impulse. (20)
2. Give the composition and functions of the pancreatic juice. How is its secretion regulated? (20)
3. Write short notes on : (5 × 4 = 20)
  - (a) Sarcomere
  - (b) Glomerular filtration rate
  - (c) Lateral spinothalamic tract
  - (d) Parathormone
  - (e) Plasma proteins.

SECTION B — (40 marks)

(BIOCHEMISTRY)

4. Write in detail about the synthesis, metabolism, fate and clinical importance of cholesterol in the body. (20)
5. Write briefly on : (5 × 4 = 20)
  - (a) Ketone Bodies
  - (b) One carbon units
  - (c) Unsaturated fatty acids
  - (d) Gluconeogenesis
  - (e) Cardiac Enzymes.

SEPTEMBER 2002

[KH 227]

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. Define Blood Pressure. Give its normal values in an adult. Discuss in detail how Blood Pressure is regulated in the body. (2 + 2 + 16 = 20)

2. What are the hormones secreted by the Posterior (lobe) Pituitary gland. Discuss the action of any one in detail. (2 + 18 = 20)

3. Write briefly on : (5 × 4 = 20)

- (a) Glycosuria
- (b) Stages of Erythropoiesis
- (c) Defaecation reflex
- (d) Functions of cerebellum
- (e) Transport of oxygen by blood.

SECTION B — (40 marks)

(BIO CHEMISTRY)

4. Name the aromatic Amino-Acids. Describe the metabolism of Tyrosine including the inborn errors seen during the process. (20)

5. Write briefly on : (5 × 4 = 20)

- (a) Hyperglycemia
- (b) Poly unsaturated Fatty Acids
- (c) Creatine Phosphokinase
- (d) Serum calcium
- (e) Deficiency of Niacin manifestation.

**APRIL 2003**

**[KI 227]**

**Sub. Code : 2952**

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. Describe the various parts of the respiratory tract giving their chief functions. How is respiration regulated? (20)
2. What is Haemostasis? Describe the process of the blood clotting mechanism in detail. Name two anti-coagulants and give their physiological basis of action. (20)
3. Write short notes on : (5 × 4 = 20)
  - (a) Rh-factor
  - (b) Heart sounds
  - (c) Plasma clearance
  - (d) Cerebellar functions
  - (e) Anti-diuretic hormone.

SECTION B — (40 marks)

(BIOCHEMISTRY)

4. Describe the synthesis and breakdown of Glycogen in the body. What are the hormones which regulate them? (20)
5. Write briefly on : (5 × 4 = 20)
  - (a) 'Good' cholesterol
  - (b) Ketone bodies
  - (c) Anti oxidants
  - (d) Heparin
  - (e) Ascorbic acid.

APRIL 2004

[KK 227]

Sub. Code : 2952

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

Preliminary

(Common to all branches)

Paper II — PHYSIOLOGY AND BIOCHEMISTRY

Time : Three hours

Maximum : 100 marks

Sec. A & B : Two hours and  
forty minutes

Sec. A & B : 80 marks

Section C : Twenty minutes

Section C : 20 marks

Answer Sections A and B in SEPARATE Answer Books.

Answer Section C in the Answer Sheet provided.

SECTION A

(PHYSIOLOGY)

1. Discuss in detail the histology, development and secretions of Pituitary gland. Describe the effect of hypersecretion of Growth hormone. (15)
2. Write short notes on : (5 × 5 = 25)
  - (a) Surfactant.
  - (b) Cerebro spinal fluid.

(c) Tetany.

(d) Myopia.

(e) Permanent contraceptive devices.

SECTION B

(BIOCHEMISTRY)

3. What are enzymes? Describe enzyme action and factors influencing them. Describe biologically important enzymes. (15)
4. Short notes on the following : (5 × 5 = 25)
  - (a) Glycogen storage diseases.
  - (b) LDH
  - (c) Ketone bodies
  - (d) Liver function tests
  - (e) Kwashiorkor.

**AUGUST 2005**

**[KN 227]**

**Sub. Code : 2952**

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

**Preliminary**

**(Common to all branches)**

**Paper II — PHYSIOLOGY AND BIOCHEMISTRY**

**Time : Three hours**

**Maximum : 100 marks**

**Sec. A & B : Two hours and  
forty minutes**

**Sec. A & B : 80 marks**

**Section C : Twenty minutes**

**Section C : 20 marks**

**Answer Sections A and B in SEPARATE  
Answer Books.**

**Answer Section C in the Answer Sheet provided.**

**Answer ALL questions.**

**SECTION A — (40 marks)**

**(PHYSIOLOGY)**

**1. Discuss in detail the production, circulation and functions of cerebro spinal fluid. Explain the term blood brain barrier. (15)**

**2. Write short notes on : (5 × 5 = 25)**

**(a) Iron deficiency anemia.**

**(b) Extra cellular fluid.**

**(c) Cushing's syndrome.**

**(d) Functions of saliva.**

**(e) Reflex arc.**

**SECTION B — (40 marks)**

**(BIOCHEMISTRY)**

**3. Describe the structure and synthesis of cholesterol. Name the products formed from cholesterol and its importance. (15)**

**4. Write briefly on : (5 × 5 = 25)**

**(a) Coenzyme A.**

**(b) Structure of Insulin.**

**(c) Functions of Protein.**

**(d) Alkaptonuria.**

**(e) Importance of the assay of Serum Transaminases.**

**AUGUST 2006**

**[KP 227]**

**Sub. Code : 2952**

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

**Preliminary**

**(Common to all branches)**

**Paper II — PHYSIOLOGY AND BIOCHEMISTRY**

**Time : Three hours**

**Maximum : 100 marks**

**Descriptive : Two hours and**

**Descriptive : 80 marks**

**forty minutes**

**Objective : Twenty minutes**

**Objective : 20 marks**

**Answer Sections A and B in the SEPARATE**

**Answer books.**

**Answer Section C in the Answer Sheet provided.**

**Answer ALL questions.**

**SECTION A — (40 marks)**

**PHYSIOLOGY**

1. Define arterial Blood pressure. Mention the factors regulating BP. (15)
2. Give an account of formation of urine. (10)
3. Write short notes on : (3 × 5 = 15)
  - (a) ECG
  - (b) Vital capacity
  - (c) Functions of Gall Bladder.

**SECTION B — (40 marks)**

**BIOCHEMISTRY**

4. Justify the statement – ‘Citric Acid Cycle is the final common metabolic pathway for carbohydrate, protein and lipids’ add a note on its regulation. (15)
5. Describe the Metabolism of Phospholipids. (10)
6. Write short notes on : (3 × 5 = 15)
  - (a) Renal function test
  - (b) Bile Salts
  - (c) Structure of Hemoglobin.

MARCH 2007

[KQ 227]

Sub. Code : 2952

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

Preliminary

(Common to all branches)

Paper II — PHYSIOLOGY AND BIOCHEMISTRY

Time : Three hours                      Maximum : 100 marks

Descriptive : Two hours and          Descriptive : 80 marks  
forty minutes

Objective : Twenty minutes          Objective : 20 marks

Answer Sections A and B in the **SEPARATE**  
Answer Books.

Answer Section C in the Answer Sheet provided.

Answer ALL questions.

SECTION A — (40 marks)

(PHYSIOLOGY)

1. What is the normal blood calcium level and how it is regulated? (15)
2. Describe the origin, course, termination of the major descending motor pathway and its manifestations produced by lesion at various levels. (10)

3. Write short notes on : (3 × 5 = 15)

- (a) Law of intestine
- (b) Oral contraceptives
- (c) Attenuation reflex.

SECTION B — (40 marks)

(BIOCHEMISTRY)

4. Digestion and absorption of carbohydrates. Write in detail about gluconeogenesis. (15)

5. Write in detail about the salvage pathway of purines. (10)

6. Write short notes on : (3 × 5 = 15)

- (a) Plasma proteins
- (b) Fate of acetyl CoA
- (c) Catabolism of Haem.

MARCH 2008

[KS 227]

Sub. Code : 2952

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

Preliminary

(Common to all branches)

Paper II — PHYSIOLOGY AND BIOCHEMISTRY

Q.P. Code : 282952

Time : Three hours

Maximum : 100 marks

Answer Sections A and B in the **SEPARATE**  
Answer books.

Answer ALL questions.

SECTION A — (60 marks)

PHYSIOLOGY

- I. Essay : (1 × 20 = 20)
1. Classify Leucocytes and describe their functions and their variations.
- II. Write short notes on : (10 × 4 = 40)
- (1) Blood Groups
  - (2) Artificial respiration
  - (3) Growth hormone
  - (4) Functions of Large intestine

- (5) E.C.G.
- (6) Anti-diuretic hormone
- (7) Cerebro spinal fluid
- (8) Plasma proteins
- (9) Cretinism
- (10) Functions of hypothalamus.

SECTION B — (40 marks)

BIOCHEMISTRY

- I. Essay : (1 × 20 = 20)
1. Write the structure of Aromatic Amino Acids. Write in detail about the metabolism of phenylalanine and about the Biologically important substances synthesised from it.
- II. Write short notes on : (5 × 4 = 20)
- (1) Mucopolysaccharides
  - (2) Prostaglandins
  - (3) Co-enzyme functions of Biotin
  - (4) Specific dynamic action
  - (5) Conversion of pyruvate to Acetyl CoA.



[KZ 1011]

Sub. Code: 2952

**M.Sc NON-MEDICAL DEGREE EXAMINATION**  
**(Common to all branches)**  
**PAPER II – PHYSIOLOGY AND BIOCHEMISTRY**  
*Q.P. Code : 282952*

**Time : 3 hours**  
**(180 Min)**

**Maximum : 100 marks**

**Answer ALL questions in the same order.**

**SECTION - A**  
**(PHYSIOLOGY)**

**I. Elaborate on :**

|   | <b>Pages</b>  | <b>Time</b>   | <b>Marks</b>  |
|---|---------------|---------------|---------------|
|   | <b>(Max.)</b> | <b>(Max.)</b> | <b>(Max.)</b> |
| 1. Draw the structure of nephron. Explain the steps involved in the formation of urine. How is GFR (Glomerular Filtration Rate) measured? | 17            | 40            | 20            |

**II. Write notes on :**

|                                    |   |    |   |
|------------------------------------|---|----|---|
| 1. Physiology of lactation         | 4 | 10 | 6 |
| 2. Immunity                        | 4 | 10 | 6 |
| 3. Excitation-contraction coupling | 4 | 10 | 6 |
| 4. Sleep and changes in EEG        | 4 | 10 | 6 |
| 5. Functions of saliva             | 4 | 10 | 6 |

**SECTION – B**  
**(BIOCHEMISTRY)**

**I. Elaborate on :**

|  | <b>Pages</b>  | <b>Time</b>   | <b>Marks</b>  |
|--|---------------|---------------|---------------|
|  | <b>(Max.)</b> | <b>(Max.)</b> | <b>(Max.)</b> |
| 1. Describe in detail the metabolism of Low density lipoprotein with a note on associated disorders. | 17            | 40            | 20            |

**II. Write notes on :**

|  |   |    |   |
|--|---|----|---|
| 1. RFLP.                                 | 4 | 10 | 6 |
| 2. Synthetic analogues.                  | 4 | 10 | 6 |
| 3. Regulation of gluconeogenesis.        | 4 | 10 | 6 |
| 4. Different types of enzyme inhibition. | 4 | 10 | 6 |
| 5. Metabolism of Ketone bodies.          | 4 | 10 | 6 |

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