

APRIL 2001

[KD 1402]

B.N.Y.S. DEGREE EXAMINATION.

(Old Regulations)

First Year

Part I

Paper II — HUMAN PHYSIOLOGY AND
BIOCHEMISTRY

Time : Three hours

Maximum : 100 marks

Answer Sections A and B in separate answer books.

SECTION A

1. Answer in detail any TWO of the following :
(2 × 15 = 30)
 - (a) Describe the different stages of erythropoiesis and factors controlling each stage.
 - (b) Describe the phases of Gastric secretion.
 - (c) Functions of thyroid gland and describe the abnormalities in their secretions.
2. Write briefly on any FOUR :
(4 × 5 = 20)
 - (a) Gigantism
 - (b) Glucocorticoids
 - (c) Blood groups
 - (d) Functions of Distal convoluted tubule of Nephron

- (e) Write in brief about sense of taste
- (f) Functions of Basal ganglia
- (g) Functions of W.B.C
- (h) What is dyspnoea? How it differs from hyperphoea?

SECTION B

3. Write an essay on any ONE of the following :
(1 × 20 = 20)
 - (a) What are water soluble vitamins? Give an outline on the sources, requirement, metabolic role and deficiency manifestations of pyridoxine.
 - (b) Essay on Beta-Oxidation of Fatty acids.
4. Write briefly on any SIX :
(6 × 5 = 30)
 - (a) Biosynthesis of creatinine
 - (b) Mutarotation
 - (c) Aromatic amino acids
 - (d) Neuromuscular blocking agents
 - (e) Mineralocorticoids
 - (f) Renin-angiotensin mechanism
 - (g) Stroke volume
 - (h) Vital capacity.

NOVEMBER 2001

[KE 1402]

B.N.Y.S. DEGREE EXAMINATION.

First Year

Part I

Paper II — HUMAN PHYSIOLOGY AND
BIOCHEMISTRY

Time : Three hours Maximum : 100 marks

Answer Section A and B in separate Answer Books.

SECTION A

1. Answer in detail any TWO of the following :
(2 × 15 = 30)

(a) Describe the location and interactions of the respiratory centres. Explain how they maintain the normal respiratory rhythm. What is periodic breathing?

(b) What is menstrual cycle? Explain in detail about hormonal and ovarian changes during menstrual cycle.

(c) Define cardiac output and cardiac index giving their normal values. Describe the regulation of cardiac output.

2. Write briefly on any FOUR : (4 × 5 = 20)

(a) Draw a labelled diagram of a nephron. Mention the permeability property of loop of henle.

(b) Explain the properties of skeletal muscle.

(c) Draw a schematic diagram to show the intrinsic pathway of blood clotting.

(d) Describe the second stage of deglutition.

(e) What are the physiological functions of middle ear?

(f) List changes during accommodation to near vision. Explain their purpose.

(g) Describe the transport of oxygen in blood.

(h) What is Surfactant? Explain its significance.

SECTION B

3. Write an essay on any ONE of the following :
(1 × 20 = 20)

(a) What is the normal fasting blood glucose level? Describe the various mechanisms which regulate the blood glucose level.

(b) Enumerate the ketone bodies. Describe the formation and utilization of ketone bodies in the body.

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4. Write briefly on any SIX : (6 × 5 = 30)

(a) Write on balanced diet, its composition and importance.

(b) Discuss briefly on biochemical and physiological functions of Vitamin C.

(c) Absorption storage and transport of iron.

(d) Describe the pathway for uric acid synthesis.

(e) Mention any four liver function tests and their importance.

(f) Explain the structure and function of transfer RNA.

(g) Biosynthesis of heme.

(h) Name the respiratory chain inhibitors. Mention the sites of inhibition with proper diagram.

SEPTEMBER 2002

[KH 1402]

Sub. Code : 1402

B.N.Y.S. DEGREE EXAMINATION.

First Year

Part I

Paper II — HUMAN PHYSIOLOGY AND
BIOCHEMISTRY

Time : Three hours

Maximum : 100 marks

Answer Section A and B in separate answer sheets.

SECTION A

1. Answer in detail any TWO of the following :
(2 × 15 = 30)

(a) What is Hemostasis? Describe in detail. Add a note on intra-vascular anticoagulants.

(b) Describe the functions of hypothalamus in relation with

(i) Temperature regulation

(ii) Water balance

(iii) Regulation of food intake.

(c) Explain the composition, functions and regulation of gastric juice.

2. Write briefly on any FOUR : (4 × 5 = 20)

(a) Name the errors of refraction. Diagrammatically show how the errors are corrected.

(b) Name the neuro—endocrinal reflexes. Describe any one of them.

(c) Describe the chemical regulation of respiration.

(d) List the major classes of diuretics and how each operates to increase urine flow.

(e) Describe the functions and regulation of thyroid hormone.

(f) Name the testicular hormones and explain its functions.

(g) List the steps involved in excitation-contraction coupling in skeletal muscle.

(h) Explain the physiological changes during Menopause.

SECTION B

3. Write an essay on any ONE of the following :
(1 × 20 = 20)

(a) What is beta oxidation of fatty acid? Describe the reactions and give energetics for the beta oxidation of palmitic acid.

(b) What is the normal plasma calcium level? Describe the biochemical functions, sources, RDA and deficiency manifestations of calcium.

APRIL 2003

[KI 1402]

Sub. Code : 1402

B.N.Y.S. DEGREE EXAMINATION.

(Old Regulations)

First Year

Part I

**Paper II — HUMAN PHYSIOLOGY AND
BIOCHEMISTRY**

Time : Three hours

Maximum : 100 marks

Answer Sections A and B in the SAME Answer Book.

SECTION A

1. Answer in detail any TWO of the following :
(2 × 15 = 30)

(a) Trace the touch pathways. Add a note on "referred pain".

(b) Describe the regulation of respiration in detail. Add a note on periodic-breathing.

(c) Describe the source, function and regulation of growth hormone. Explain the disorder of its hypersecretion.

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2. Write briefly on any FOUR : (4 × 5 = 20)

- (a) Explain the carbon-dioxide transport in blood
- (b) Explain the four kinds of movements of small intestine
- (c) Define coagulation. Mention the coagulation factors
- (d) Draw and label the structure of synapse. Write the properties of synapse
- (e) List the properties of cardiac muscle
- (f) Describe the regulation of coronary circulation
- (g) Draw a neat labelled diagram of juxta-glomerular apparatus and explain its functions.
- (h) Describe the role of various hormones on development of mammary gland and lactation.

SECTION B

3. Write an essay on any ONE of the following :
(1 × 20 = 20)

- (a) What is the normal fasting blood sugar level? Explain the hormone regulation of blood sugar level.
- (b) Describe the TCA cycle and give the energetics for the complete oxidation of a glucose molecule.

4. Write briefly on any SIX : (6 × 5 = 30)

- (a) Explain the regulation of serum calcium
 - (b) Explain the different phospholipids with their importance
 - (c) Balanced diet
 - (d) Discuss on Iron absorption and transport
 - (e) Describe briefly the pathway for uric acid synthesis
 - (f) Plasma proteins
 - (g) List the biochemical functions of Vitamin A
 - (h) Electron transport chain.
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OCTOBER 2003

[KJ 1402]

Sub. Code : 1402

B.N.Y.S. DEGREE EXAMINATION.

(Old Regulations)

First Year

Part I

Paper II — HUMAN PHYSIOLOGY AND
BIOCHEMISTRY

Time : Three hours

Maximum : 100 marks

Two hours and Forty

Sec. A & Sec. B : 80 marks

minutes for

Section C : 20 marks

Sec. A and Sec. B

Twenty minutes for Sec. C

Answer Sections A and B in the **SAME** Answer Book.

Answer Section C in a **SEPARATE** Answer Sheet.

Answer **ALL** questions.

SECTION A — ($2 \times 15 = 30$ marks)

1. Describe the regulation of gastric juice secretion in different phases of secretion. Add a note on peptic ulcer.
2. What are ketone bodies? Explain the synthesis and catabolism of ketone bodies. Add a note on ketosis.

SECTION B — ($10 \times 5 = 50$ marks)

3. Sketch a typical action potential in a ventricular muscle and a pacemaker cell, labelling both the voltage and time axis accurately, describe the ionic basis.
4. Describe the regulation of pancreatic juice.
5. Compare and contrast dwarfism and cretinism.
6. Explain the clinical manifestations of cerebellar lesions.
7. Describe the functions of testis.
8. Explain in detail about Vitamin A.
9. What is oxidative phosphorylation? Explain the electron transport chain.
10. Briefly explain the role of kidney and lungs in acid-base balance.
11. Describe the metabolism of bilirubin in the liver. Add a note on Van den Bergh test.
12. Polysaccharides.

APRIL 2004

[KK 1402]

Sub. Code : 1402

B.N.Y.S. DEGREE EXAMINATION.

(Old Regulations)

First Year

Part I

**Paper II — HUMAN PHYSIOLOGY AND
BIOCHEMISTRY**

Time : Three hours

Maximum : 100 marks

Sec. A & B : Two hours and

Sec. A & B : 80 marks

forty minutes

M.C.Q. : Twenty minutes

M.C.Q. : 20 marks

Answer Sections A and B in SAME Answer Book.

Answer ALL questions.

SECTION A — (2 × 15 = 30 marks)

1. Describe in detail about the mechanism of nervous and chemical regulation of respiration. Add a note on spirometry.
2. What are vitamins? Explain the dietary sources, daily requirements, biochemical functions and deficiency manifestations of Vitamin A.

SECTION B — (10 × 5 = 50 marks)

3. Define action potential. Explain action potential in a nerve fibre with the help of a diagram.
4. Describe counter current mechanism.
5. Describe the types and causes of heart sounds. Mention their clinical importance.
6. Describe the factors required for erythropoiesis.
7. Explain the changes in eye during accommodation to near object.
8. Explain heteropolysaccharides.
9. Plasma proteins and their functions.
10. Liver function tests.
11. Balanced diet.
12. Absorption, storage and transport of Iron.

AUGUST 2004

[KL 1402]

Sub. Code : 1402

B.N.Y.S. DEGREE EXAMINATION.

(Old Regulations)

First Year

Part I

**Paper II — HUMAN PHYSIOLOGY AND
BIOCHEMISTRY**

Time : Three hours

Maximum : 100 marks

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

Sec. A & B : 80 marks

M.C.Q. : Twenty minutes

M.C.Q. : 20 marks

Answer Sections A and B in SAME Answer Book.

Answer ALL the questions.

SECTION A — (2 × 15 = 30 marks)

- 1. Explain erythropoiesis and factors influencing it.**
- 2. Explain the oxidation of fatty acids.**

SECTION B — (10 × 5 = 50 marks)

Write short notes on :

- 3. Classification of Enzymes.**
- 4. Glucose tolerance.**
- 5. Transamination.**
- 6. Movements of small intestine.**
- 7. Artificial respiration.**
- 8. Functions of Thyroid.**
- 9. Glomerular filtration rate.**
- 10. Classification of reflexes.**
- 11. Abnormal Haemoglobin derivatives.**
- 12. Osazone formation.**

FEBRUARY 2005

[KM 1402]

Sub. Code : 1402

B.N.Y.S. DEGREE EXAMINATION.

(Old Regulations)

First Year

Part I

**Paper II — HUMAN PHYSIOLOGY AND
BIOCHEMISTRY**

Time : Three hours

Maximum : 100 marks

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

Sec. A & B : 80 marks

M.C.Q. : Twenty minutes

M.C.Q. : 20 marks

Answer Sections A and B in the SAME answer book.

Answer ALL questions.

SECTION A — (2 × 15 = 30 marks)

1. Define cardiac cycle. Describe the events occurring during cardiac cycle. What are the pressure changes occurring in the ventricles during cardiac cycle.

2. What is the normal level of blood glucose? Describe the hormonal regulation of blood sugar. Add a note on Diabetes Mellitus.

SECTION B — (10 × 5 = 50 marks)

3. Define Hypoxia. Classify hypoxia and describe its characteristics.

4. Describe the mechanism of HCl secretion.

5. Hormonal role in menstrual cycle.

6. What are the indications of blood transfusion? Add a note on precautions to be taken during blood transfusion.

7. Functions of basal ganglia.

8. Balanced diet.

9. Biochemical functions of vitamin A.

10. Enumerate the ketone bodies. Add a note on ketoacidosis.

11. Liver function tests.

12. Polysaccharides.

AUGUST 2005

[KN 1402]

Sub. Code : 1402

B.N.Y.S. DEGREE EXAMINATION.

(Old Regulations)

First Year

Part I

**Paper II — HUMAN PHYSIOLOGY AND
BIOCHEMISTRY**

Time : Three hours Maximum : 100 marks

**Theory : Two hours and Theory : 80 marks
forty minutes**

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

HUMAN PHYSIOLOGY (Old Regulations)

I Long Essay (2 × 15 = 30)

1. What is renal threshold? (2)

**Explain in detail on glucose under the following
headings.**

(a) Normal value in blood (1)

(b) Renal threshold value (1)

(c) Factors involved in its regulation in blood (7)

(d) Hyperglycemia and hypoglycemia (4)

2. What is normal body temperature? (2)

(a) Discuss about core temperature (4)

**(b) Factors responsible for maintaining normal
body temperature (5)**

(c) Temperature regulating mechanism. (4)

II Short notes : (10 × 5 = 50)

1. Essential fatty acids

2. Urea cycle

3. Insulin

4. Balanced diet.

5. Hemoglobin buffer system

**6. Chemistry of colour vision and blindness of colour
 (2 + 3 = 5)**

7. Cushing's syndrome

8. Defecation reflex

9. Dead space

10. Hypoxia and types. (2 + 3 = 5)

FEBRUARY 2006

[KO 1402]

Sub. Code : 1402

B.N.Y.S. DEGREE EXAMINATION

(Old Regulations)

First Year

Part I

Paper II — HUMAN PHYSIOLOGY AND BIOCHEMISTRY

Time : Three hours **Maximum : 100 marks**

Theory : Two hours and forty minutes	Theory : 80 marks
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M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer ALL questions.

HUMAN PHYSIOLOGY (Old Regulations)

I. Long Essay : (2 × 15 = 30)

1. Define erythropoiesis. List the different stages of erythropoiesis. Describe the changes. Which take place in each stage and the factors necessary for erythropoiesis.

2. Name the respiratory centres. Describe in detail about the mechanism of nervous and chemical regulation of respiration.

II. Short notes

(10 × 5 = 50)

1. Explain the cardiovascular changes during exercise.

2. Functions of middle ear.

3. Describe the sequence of events occurring during phagocytosis.

4. Describe visual pathway with the help of a neat diagram.

5. Describe counter-current mechanism.

6. Give the functions of gastric juice.

7. Enumerate the ketone bodies. Explain ketoacidosis.

8. Polysaccharides

9. **Balanced diet.**

10. Absorption, transport and storage of Iron.