

[KT 502]

AUGUST 2008

Sub. Code : 4053

**FIRST M.B.B.S. DEGREE EXAMINATION**  
**Revised (Non-Semester) Regulations**  
**Paper III – PHYSIOLOGY INCLUDING BIOPHYSICS – I**  
**Q. P. Code : 524053**

**Time : Three hours**

**Maximum: 100 Marks**

Answer **ALL** questions.

Draw Suitable diagrams wherever necessary

**I. Essay Questions :**

**(2 x 15 = 30)**

1. What is menstrual cycle.  
Explain the ovarian changes taking place during menstrual cycle.
2. What are different types of salivary glands?  
Describe the composition, functions and regulation of secretion of saliva.

**II. Write Short notes on :**

**(10 x 5 = 50)**

1. Write the features of Acromegaly.
2. Tubuloglomerular feedback.
3. Explain mechanism of secretion of hydrochloric acid in stomach.
4. Explain extrinsic mechanism of coagulation of blood.
5. Write the functions of platelets.
6. Write the actions of parathormone.
7. Cystometrogram.
8. Explain Neuroendocrine reflex.
9. Erythroblastosis Foetalis.
10. Haemophilia.

**III. Short Answer Questions :**

**(10 x 2 = 20)**

1. Functions of Eosinophil.
2. Name anticoagulants used in laboratory.
3. Write differences between adult haemoglobin and foetal haemoglobin.
4. Write functions of sertoli cells.
5. Write functions of large intestine.
6. Migrating Myoelectric Complex (MMC).
7. Achalasia Cardia.
8. Name hormones of the hypothalamus.
9. Write the actions of prolactin.
10. Name second messengers.

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**FIRST M.B.B.S. DEGREE EXAMINATION**  
**Revised (Non-Semester) Regulations**  
**Paper III – PHYSIOLOGY INCLUDING BIOPHYSICS – I**  
**Q. P. Code : 524053**

**Time : Three hours**

**Maximum: 100 Marks**

Answer **ALL** questions.

Draw Suitable diagrams wherever necessary

**I. Essay Questions :**

**(2 x 15 = 30)**

1. Describe in detail the synthesis and functions of thyroid hormones.  
Add a note on Hypothyroidism.
2. Describe the composition, functions and regulation of secretion of gastric juice.

**II. Write Short notes on :**

**(10 x 5 = 50)**

1. Composition of semen and its uses as a diagnostic tool.
2. Functions of juxtaglomerular apparatus.
3. Explain components and functions of bile.
4. Explain the stages of development of erythrocytes.
5. Describe the metabolic actions of cortisol.
6. Describe briefly the formation and functions of corpus luteum.
7. Describe the formation and circulation of lymph.
8. Enumerate the hormones secreted by anterior pituitary gland.  
Describe the actions of growth hormone.
9. Classify the fluid compartments of body giving their normal values  
mention two methods to determine E.C.F.
10. Describe the formation and functions of immunoglobulins.

**III. Short Answer Questions :**

**(10 x 2 = 20)**

1. Briefly describe the process of deglutition.
2. Heparin.
3. Name two indications of exchange transfusion.
4. Purpura.
5. Plasma cells.
6. Functions of plasma proteins.
7. Phagocytosis.
8. Physiological basis of pregnancy diagnosing tests.
9. Role of oxytocin in female reproduction.
10. List the important functions of saliva.

[KV 502]

AUGUST 2009

Sub. Code : 4053

**FIRST M.B.B.S. DEGREE EXAMINATION**  
**Revised (Non-Semester) Regulations**  
**Paper III – PHYSIOLOGY INCLUDING BIOPHYSICS – I**  
**Q. P. Code : 524053**

**Time : Three hours**

**Maximum: 100 Marks**

Answer **ALL** questions.

Draw Suitable diagrams wherever necessary

**I. Essay Questions :**

**(2 x 15 = 30)**

1. Enumerate the NUCLEI of Hypothalamus. Explain the connections and functions of hypothalamic obesity.
2. Explain the counter current mechanism in the concentration of urine. Add a note on diuresis.

**II. Write Short notes on :**

**(10 x 5 = 50)**

1. Micturition reflex.
2. Gastric emptying.
3. Indicators of ovulation.
4. Myxoedema.
5. Entero hepatic circulation of bile.
6. Chonn's syndrome.
7. Functions of glucocorticoids.
8. Significance of Rh group.
9. A Transport mechanisms across cell membrane.
10. Albumin : Globulin Ratio.

**III. Short Answer Questions :**

**(10 x 2 = 20)**

1. Actions of Insulin.
2. Estrogen – Functions.
3. Aldosterone escape.
4. Function of saliva.
5. Significance of erythrocyte sedimentation rate.
6. Functions of corpus luteum.
7. Blood – testis barrier.
8. GAP junctions.
9. Glomerular filtration rate.
10. Dietary fibre.

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[KW 502]

FEBRUARY 2010

Sub. Code : 4053

**FIRST M.B.B.S. DEGREE EXAMINATION**  
**Revised (Non-Semester) Regulations**  
**Paper III – PHYSIOLOGY INCLUDING BIOPHYSICS – I**  
**Q. P. Code : 524053**

**Time : Three hours**

**Maximum: 100 Marks**

Answer **ALL** questions.

Draw Suitable diagrams wherever necessary

**I. Essay Questions :**

**(2 x 15 = 30)**

1. Describe the enteric and colonic movements.  
Discuss the role of the enteric nervous system. Add a note on defaecation.
2. How did Hans Selye, group the adrenocortical hormones?  
Elucidate their physiological functions.

**II. Write Short notes on :**

**(10 x 5 = 50)**

1. Cells in fibrous tissue, their functions.
2. Functional categorization of plasma proteins.
3. Starling forces and oedema.
4. Digestive proteases.
5. Transporters of amino acids in gut and kidney.
6. Counter current in juxtamedullary nephrons.
7. Abnormalities of micturition.
8. Actions of parathormone.
9. Neuro humoral reflexes.
10. Immunological test for pregnancy.

**III. Short Answer Questions :**

**(10 x 2 = 20)**

1. Measurement of total body water.
2. Lipids in cell membrane.
3. Remodelling of bone tissue.
4. Landsteiner's laws.
5. Fibrinolysis.
6. Lingual lipase.
7. Limiting PH of urine.
8. Leptin.
9. Mullerian regression factor.
10. Composition of semen.

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**FIRST M.B.B.S. DEGREE EXAMINATION**  
**Revised (Non-Semester) Regulations**  
**Paper III – PHYSIOLOGY INCLUDING BIOPHYSICS – I**  
**Q. P. Code : 524053**

**Time : Three hours**

**Maximum: 100 Marks**

Answer **ALL** questions.

Draw Suitable diagrams wherever necessary

**I. Essay Questions :**

**(2 x 15 = 30)**

1. Name the different blood group systems. Mention the importance of blood groups.  
Explain the procedure for determining the blood group of an individual.  
Give the basis and principles of treatment of Erythroblastosis Foetalis.
2. Name any four hormones producing Hyperglycemia.  
Explain the actions of the chief hypoglycemic hormone on liver, skeletal muscle and adipose tissue. Briefly explain GTT.  
Add a note on diabetes Mellitus and Physiological basis of its treatment.

**II. Write Short notes on :**

**(10 x 5 = 50)**

1. Describe the phases of gastric juice secretion.
2. Micelle formation.
3. Describe cystometrogram.
4. Functions of Sertoli cells.
5. Functions of Placenta.
6. Plasma proteins.
7. Hepatic and gall bladder bile.
8. Deglutition.
9. Differences between cretinism and Dwarfism.
10. Explain the hormonal regulation of menstrual cycle.

**III. Short Answer Questions :**

**(10 x 2 = 20)**

1. Phagocytosis.
2. Role of sweat glands in thermoregulation.
3. 'B' lymphocytes in immunity.
4. ESR and its clinical significance.
5. Foetoplacental unit.
6. Actions of relaxin and inhibins.
7. Endogenous Pyrogens.
8. Defaecation reflex.
9. PAH clearance.
10. Brown fat tissue.

[KY 502]

FEBRUARY 2011

Sub. Code : 4053

**FIRST M.B.B.S. DEGREE EXAMINATION**  
**Revised (Non-Semester) Regulations**  
**Paper III – PHYSIOLOGY INCLUDING BIOPHYSICS – I**  
**Q. P. Code : 524053**

**Time : Three hours**

**Maximum: 100 Marks**

Answer **ALL** questions.

Draw Suitable diagrams wherever necessary

**I. Essay Questions :** (2 x 15 = 30)

1. Write in detail the electron microscopic structure of skeletal muscle and the molecular mechanism of muscular contraction.
2. Discuss the composition, mechanism and regulation of gastric secretion.

**II. Write Short notes on :** (10 x 5 = 50)

1. Neuro muscular junction.
2. Regulation of salivary secretions.
3. Functions of pancreatic juice.
4. Erythropoiesis.
5. Micturition reflex.
6. Spermatogenesis.
7. Glucagon.
8. Foeto placental unit.
9. Secondary active transport.
10. Fibrinolytic system.

**III. Short Answer Questions :** (10 x 2 = 20)

1. Milieu interior.
2. Function of large intestine.
3. Steatorrhea.
4. Dietary fibre.
5. Multi unit smooth muscle.
6. Sarcomere.
7. Cytokines.
8. Auto immune disease.
9. Na+k+pump.
10. EMG.

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**FIRST M.B.B.S. DEGREE EXAMINATION**  
**Revised (Non-Semester) Regulations**  
**Paper III – PHYSIOLOGY INCLUDING BIOPHYSICS – I**  
**Q. P. Code : 524053**

**Time : Three hours**

**Maximum: 100 Marks**

Answer **ALL** questions.

Draw Suitable diagrams wherever necessary

**I. Essay Questions :**

**(2 x 10 = 20)**

1. Define GFR. Explain briefly about mechanism of factors regulating GFR.
2. Define Haemostasis. Describe briefly about the mechanism of clotting.  
Add a note on hemophilia.

**II. Write Short notes on :**

**(10 x 5 = 50)**

1. Resting membrane potential.
2. Negative feedback mechanism with example.
3. Pathophysiology of Diabetes mellitus
4. Small intestinal movements.
5. Neuro endocrinal reflex.
6. Functions of placenta.
7. Describe the phases of gastric juice secretion.
8. Hormonal regulation of menstrual cycle.
9. Dwarf.
10. Composition & Functions of saliva.

**III. Short Answer Questions :**

**(15 x 2 = 30)**

1. Four functions of plasma protein.
2. Helper cells.
3. Kernicterus.
4. Secondary active transport.
5. Rigor mortis.
6. Name the Second messengers.
7. Name the hormones involved for the growth.
8. What is Turner's syndrome – three features?
9. APUD cells of its secretion.
10. Law of intestine.
11. Double Bhor effect.
12. Aldosterone escape.
13. What are different types of water absorption?
14. What is Houssay animal?
15. Name the hormones involved in calcium homeostasis, and the main organs that will act.

**FIRST M.B.B.S. DEGREE EXAMINATION**  
**Revised (Non-Semester) Regulations**  
**Paper III – PHYSIOLOGY INCLUDING BIOPHYSICS – I**  
**Q. P. Code : 524053**

**Time : Three hours**

**Maximum: 50 Marks**

Answer **ALL** questions in the same order.  
Draw Suitable diagrams wherever necessary

**I. Elaborate on :**

1. Explain the sliding filament hypothesis and outline the main events in the cross-bridge cycle. **(1 x 10 = 10)**
2. What are the components of gastric secretion?  
Explain the regulation of gastric secretion. **(1 x 5 = 5)**

**II. Write notes on:**

**(10 x 2 = 20)**

1. Anticoagulants.
2. G protein.
3. Calcitriol.
4. Thyroid function tests.
5. Describe the Reflex Arcs involved in micturition.
6. Explain the renal contribution to pH control.
7. Tubulo glomerular feedback mechanism.
8. Functions of plasma proteins.
9. Haemophilia.
10. Counter current blood flow in the villi.

**III. Short Answers on :**

**(10 x 2 = 20)**

1. Functions of Na-K pump.
2. Saltatory conduction.
3. Conn's syndrome.
4. Laron dwarf.
5. Aquaporins.
6. Anion Gap.
7. Macula densa.
8. Opsonization.
9. Immunological memory.
10. Cholelithiasis.
11. Enterogastric reflex.
12. Peristaltic rush.
13. Progeria.
14. Pills.
15. Permissive action.

**FIRST M.B.B.S. DEGREE EXAMINATION**  
**Paper III – PHYSIOLOGY INCLUDING BIOPHYSICS – I**

*Q. P. Code : 524053*

**Time : 180 Minutes**

**Maximum: 100 Marks**

Answer **ALL** questions.

Draw Suitable diagrams wherever necessary

**I. Elaborate on:**

**Pages Time Marks**  
**(Max.) (Max.) (Max.)**

- |  |    |    |    |
|--|----|----|----|
| 1. What are the normal blood sugar levels?<br>Which hormones regulate the blood sugar level and how?<br>Add a note on diabetes mellitus. | 16 | 25 | 15 |
| 2. Discuss stages of erythropoiesis and the factors affecting it.<br>Add a note on sickle cell anemia.                                   | 16 | 25 | 15 |

**II. Write notes on:**

- |  |   |   |   |
|--|---|---|---|
| 1. Functions of platelets.                         | 3 | 8 | 5 |
| 2. Composition and functions of gastric Juice.     | 3 | 8 | 5 |
| 3. Molecular basis of skeletal muscle contraction. | 3 | 8 | 5 |
| 4. Sertoli cells.                                  | 3 | 8 | 5 |
| 5. Rh blood group.                                 | 3 | 8 | 5 |
| 6. Movements of small intestine.                   | 3 | 8 | 5 |
| 7. Functions of placenta.                          | 3 | 8 | 5 |
| 8. Functions of mitochondria.                      | 3 | 8 | 5 |
| 9. Puberty.  | 3 | 8 | 5 |
| 10. Functions of glucocorticoids.                  | 3 | 8 | 5 |

**III. Short Answers on:**

- |                             |   |   |   |
|-----------------------------|---|---|---|
| 1. Inulin clearance.        | 1 | 5 | 2 |
| 2. Oxytocin.                | 1 | 5 | 2 |
| 3. Fever.                   | 1 | 5 | 2 |
| 4. Second messengers.       | 1 | 5 | 2 |
| 5. Functions of bile salts. | 1 | 5 | 2 |
| 6. ESR.                     | 1 | 5 | 2 |
| 7. Hypocalcemic tetany.     | 1 | 5 | 2 |
| 8. Placental hormones.      | 1 | 5 | 2 |
| 9. Myasthenia gravis.       | 1 | 5 | 2 |
| 10. Immunoglobulins.        | 1 | 5 | 2 |

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[LC 502]

FEBRUARY 2013

Sub. Code : 4053

**FIRST M.B.B.S. DEGREE EXAMINATION**  
**Paper III – PHYSIOLOGY INCLUDING BIOPHYSICS – I**

*Q. P. Code : 524053*

**Time : 180 Minutes**

**Maximum: 50 Marks**

Answer **ALL** questions.

Draw Suitable diagrams wherever necessary

**I. Elaborate on:**

**(2 x 7.5 = 15)**

1. Define haemostasis.  
Describe in detail about Extrinsic and Intrinsic mechanism of clotting?
2. Give an account of composition and functions of pancreatic juice.  
How is the secretion regulated.

**II. Write notes on :**

**(10 x 2.5 = 25)**

1. Erythroblastosis foetalis.
2. Isotonic and isometric contraction
3. Facilitated diffusion
4. Enterohepatic circulation
5. Juxta Glomerular Exchanger
6. Counter current Exchanger
7. Transport Maximum
8. Acromegaly
9. Steps in Thyroxine synthesis
10. Stages of spermatogenesis

**III. Short Answers on:**

**(10 x 1 = 10)**

1. Chronaxie
2. Motor unit
3. Apoptosis
4. Osmotic diuresis
5. LH surge
6. Somatomedins
7. Hormones of Adrenal cortex
8. Types of diabetes
9. Action of paratharmone on bone
10. Menarche

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[LD 502]

AUGUST 2013

Sub. Code : 4053

**FIRST M.B.B.S. DEGREE EXAMINATION**  
**Paper III – PHYSIOLOGY INCLUDING BIOPHYSICS – I**

*Q. P. Code : 524053*

**Time : 180 Minutes**

**Maximum: 50 Marks**

**Answer ALL questions.**

**Draw Suitable diagrams wherever necessary**

**I. Elaborate on:**

**(2 x 7.5 = 15)**

1. What are blood groups? Discuss their importance.
2. Describe the hormonal regulation of human menstrual cycle.

**II. Write notes on:**

**(10 x 2.5 = 25)**

1. Tests for ovulation.
2. Contraceptives.
3. Thyroxine synthesis.
4. Tetany.
5. Juxta glomerular apparatus.
6. Dialysis.
7. Gastric emptying.
8. Enterohepatic circulation.
9. Functions of saliva.
10. Autoimmune diseases.

**III. Short Answers on:**

**(10 x 1 = 10)**

1. Functions of sodium potassium ATPase pump
2. Mention the normal value of GFR and substance used to measure GFR.
3. Enumerate heat loss mechanism
4. Peristalsis
5. What is the role of vitamin K in the body?
6. What is the normal blood calcium level?
7. Name the hormones of adrenal cortex.
8. Name the hormones of placenta
9. Cryptorchidism
10. Why are ovarian cycles suppressed during lactation?

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**FIRST M.B.B.S. DEGREE EXAMINATION**  
**Paper III – PHYSIOLOGY INCLUDING BIOPHYSICS – I**

*Q. P. Code : 524053*

**Time : 180 Minutes**

**Maximum: 50 Marks**

Answer **ALL** questions.

Draw Suitable diagrams wherever necessary

**I. Elaborate on:**

**(2 x 7.5 = 15)**

1. Describe the physiological roles of the different types of granulocytes circulating in blood.
2. Define Glomerular Filtration Rate (GFR). What are its determinants?  
Discuss the phenomenon of autoregulation of GFR.  
Describe the best test for estimation of GFR.  
What is the routinely used clinical test to assess renal function?

**II. Write notes on:**

**(10 x 2.5 = 25)**

1. cAMP signaling pathway, with an example
2. Colloid oncotic pressure and its importance
3. Excitation-contraction coupling in skeletal muscle
4. Types of polycythemia and complications due to this condition
5. Findings of 'tests of hemostasis' in hemophilia
6. Functions of macrophages
7. Physiological role of corticosteroids
8. Function of any one hormone of posterior pituitary
9. Composition of bile and the physiological role (if any) of the components.
10. Pathophysiology of peptic ulcer

**III. Short Answers on:**

**(10 x 1 = 10)**

1. Membrane transporters involved in clearance of calcium from cytoplasm
2. Concentrations of sodium and potassium in intra and extracellular fluids
3. Phenomena involved in the act of swallowing
4. Role of ATP in relaxation of muscle
5. Draw a schematic diagram of the sarcomere and label its components
6. Opsonins
7. Cells which express Major Histocompatibility complex II
8. Significance of glycosylated hemoglobin
9. Name 4 enzymes in pancreatic secretion
10. Hormonal imbalance causing (a) acromegaly (b) cretinism

**FIRST M.B.B.S. DEGREE EXAMINATION**

**Paper III – PHYSIOLOGY INCLUDING BIOPHYSICS - I**

*Q. P. Code: 524053*

**Time: Three Hours**

**Maximum: 50 Marks**

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

**I. Essay:**

**(1 x 10 = 10)**

1. What is the composition of gastric juice?  
Describe the mechanism of HCl secretion.  
Give a detailed account on the regulation of gastric secretion.

**II. Write Notes on:**

**(2 x 5 = 10)**

1. Hypersecretion of growth hormone
2. Tissue macrophage system.

**III. Short Answers on:**

**(10 x 3 = 30)**

1. Permissive action of hormone
2. Role of Vitamin D in Calcium Homeostasis.
3. Contraception in males
4. Corpus luteum
5. Vitamin-K dependent clotting Factors.
6. Atonic bladder
7. Functions of skin
8. Secondary active transport
9. Motor unit
10. Refractory period.

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## FIRST M.B.B.S. DEGREE EXAMINATION

### Paper III – PHYSIOLOGY INCLUDING BIOPHYSICS - I

*Q. P. Code : 524053*

**Time: Three Hours**

**Maximum: 50 Marks**

Answer **ALL** questions.

Draw Suitable diagrams wherever necessary

#### **I. Essay:**

**(1 x 10 = 10)**

1. Define anemia. Classify them. List the important investigations to confirm the various types of anemia.

#### **II. Write Notes on:**

**(2 x 5 = 10)**

1. Transport across cell membrane.
2. Ovarian and endometrial changes of menstrual cycle.

#### **III. Short Answers on:**

**(10 x 3 = 30)**

1. Functions of plasma proteins
2. Non-excretory functions of kidney
3. Myasthenis gravis
4. Stages of spermatogenesis
5. Cystometrogram and its significance
6. Hormones regulating calcium homeostasis
7. Enterohepatic circulation
8. Enzymes involved in digestion of fat
9. Structure of platelets
10. Functions of saliva

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[LG 502]

FEBRUARY 2015

Sub.Code :4053

**FIRST YEAR M.B.B.S. DEGREE EXAMINATION  
PAPER III – PHYSIOLOGY INCLUDING BIOPHYSICS - I**

*Q.P. Code: 524053*

**Time: Three hours**

**Maximum : 50 Marks**

**Answer All Questions**

**I. Elaborate on:**

**(1 x 10 = 10)**

1. Describe the synthesis, storage, release, functions and regulation of secretion of thyroid hormone. Add a note on hypothyroidism.

**II. Write notes on:**

**(2 x 5 = 10)**

1. Give an account on micturition
2. Classify the blood groups and indications and complications of blood transfusion

**III. Short answers on:**

**(10 x 3 = 30)**

1. Fetoplacental unit
2. Importance of dietary fibres
3. Neuromuscular transmission
4. ESR-clinical significance
5. Movements of small intestine
6. Diabetes Insipidus
7. Red cell indices
8. Extracellular edema
9. Functions of Sertoli cells
10. Tests for ovulation

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[LH 502]

AUGUST 2015

Sub. Code: 4053

## FIRST M.B.B.S. DEGREE EXAMINATION

### PAPER III – PHYSIOLOGY INCLUDING BIO - PHYSICS - I

*Q.P. Code: 524053*

**Time : Three Hours**

**Maximum : 50 marks**

**Answer ALL questions**

**I. Elaborate:**

**(1 x 10 = 10)**

1. Describe the mechanism of coagulation of blood.

**II. Write notes on :**

**(2 x 5 = 10)**

1. Cushings syndrome.
2. Succus entericus.

**III. Short answers on :**

**(10 x 3 = 30)**

1. Resting membrane potential.
2. Define all or none law. How is this law applicable in the skeletal and cardiac muscle.
3. Name the muscle proteins. What is the role of troponin c in muscle contraction.
4. Inulin clearance.
5. Countercurrent exchanger mechanism in kidney.
6. Somatomedin.
7. Action of thyroxine on CVS.
8. Positive feedback mechanism.
9. How does temperature influence spermatogenesis?
10. Effects of oestrogen on the uterine endometrium.

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