THE TAMIL NADU DR.M.G.R. MEDICAL UNIVERSITY

[MD 0524] **MAY 2024** **Sub. Code: 4013**

M.D. DEGREE EXAMINATION

BRANCH V – PHYSIOLOGY
PAPER I – GENERAL PHYSIOLOGY INCLUDING HISTORY OF PHYSIOLOGY

Q.P. Code: 204013

Time : Three Hours **Maximum : 100 Marks**

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

1. Write in detail about Electrophysiology of the cell membrane. Add a note on the voltage clamp.

2. Define Milieu Interior. Write elaborately the homeostatic mechanisms. Add a note on neuro endocrine reflex.

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

1. Gene Expression regulation.
2. Catalytic receptors.
3. Mitochondria.
4. Structure – function relationship in proximal convoluted tubule.
5. Secondary active transport.
6. Sucrose space.
7. Theories of ageing.
8. Hagen Poiseuille law.
9. Micro anatomy of testis.
10. Banting and Best.

III. Reasoning Out: **(4 x 5 = 20)**

1. Paroxysmal nocturnal haematuria.
2. Receptor occupancy and pertussis toxin.
3. Role of Leukotrienes in disease.
4. Explain about factors limiting the rate of facilitated diffusion.

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THE TAMIL NADU DR.M.G.R. MEDICAL UNIVERSITY

[MD 1224] **DECEMBER 2024** **Sub. Code: 4013**

(OCTOBER 2024 EXAM SESSION)

M.D. DEGREE EXAMINATION

PHYSIOLOGY

PAPER I – GENERAL PHYSIOLOGY INCLUDING HISTORY OF PHYSIOLOGY

Q.P. Code: 204013

Time : Three Hours **Maximum : 100 Marks**

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

1. a) Explain in detail about Molecular basis of Excitation Contraction Coupling in skeletal muscle.
   b) Add a note on Heat Rigor.

2. a) Describe the formation of RBC and factors which regulate it.
   b) Add a note on Anaemia.

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

1. Tight junctions.
2. Claude Bernard.
3. Large intestinal Motility.
4. Functions of Platelets.
5. Na^+K^+ ATPase Pump.
6. Haemophilia.
7. Landsteiner Law.
8. Succus entericus.
9. All or None Law.
10. Dietary Fibre.

III. Reasoning Out: **(4 x 5 = 20)**

1. Leucopenia in Typhoid fever.
2. Rigor mortis in dead bodies.
3. Anti-D immunoglobulin should be injected within 72 hours of delivery – Why?
4. Absorption of Meal is hastened along with sweets. Why?

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THE TAMIL NADU DR.M.G.R. MEDICAL UNIVERSITY

[MD 0525] **MAY 2025** **Sub. Code: 4013**

M.D. DEGREE EXAMINATION

PHYSIOLOGY

PAPER I – GENERAL PHYSIOLOGY INCLUDING HISTORY OF PHYSIOLOGY

Q.P. Code: 204013

Time : Three Hours **Maximum : 100 Marks**

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

1. What is Heartburn? Discuss its pathophysiology and ways it might be treated.
2. Describe the blood clotting and anticlotting systems and the clinical importance of each system.

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

1. Enumerate the structural and functional difference of Type I & II muscle fibre.
2. Positive feedback systems.
3. Calmodulin.
4. Cytoskeleton.
5. Vesicular transport.
6. Functions of neutrophils.
7. GALEN.
8. Biological thermostat.
9. Gap junctions.
10. Defecation reflex.

III. Reasoning Out: **(4 x 5 = 20)**

1. Steatorrhea in patients with hyperacidity.
2. Phototherapy is of value in treating infants with jaundice due to hemolysis.
3. Opsonization helps phagocytosis.
4. Post – Prandial alkaline tide.

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THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

[MD 1025] **OCTOBER 2025** **Sub. Code: 4013**

M.D. DEGREE EXAMINATION

PHYSIOLOGY

PAPER I – GENERAL PHYSIOLOGY INCLUDING HISTORY OF PHYSIOLOGY

Q.P. Code: 204013

Time : Three Hours **Maximum : 100 Marks**

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

1. a) Describe the Molecular Mechanism of HCL secretion and experimental evidences.
   b) Add a note on Migratory Motor Complex.

2. a) Define Hemostasis.
   b) Describe the mechanisms involved in clot formation.
   c) Add a note on Hemophilia.

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

1. Molecular Motors.
2. Passive transport.
3. Law of intestine.
4. Plasticity.
5. NK cells.
6. Peter Agre.
7. ABO incompatibility.
8. Secretin.
9. Calcium as a second messenger.
10. Reverse Peristalsis.

III. Reasoning Out: **(4 x 5 = 20)**

1. Blood is fluid inside the blood vessel. Justify it.
2. Postprandial Alkaline tide.
3. Process of regeneration of endometrium after shedding during Menstrual Cycle – substantiate it.
4. Recirculation of bile 6-8 times. Why?

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THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

[MD 0526] **MAY 2026** **Sub. Code: 4013**

M.D. DEGREE EXAMINATION

PHYSIOLOGY

PAPER I – GENERAL PHYSIOLOGY INCLUDING HISTORY OF PHYSIOLOGY

Q.P. Code: 204013

Time : Three Hours **Maximum : 100 Marks**

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

1. Write in detail about transcription factors. Add a note on site specific proteolysis.
2. Write elaborately the Extracellular volume and whole body water content regulation. Add a note on Hyperosmotic fluid absorption.

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

1. Rough Endoplasmic Reticulum.
2. Microtubules.
3. Cyclooxygenase Isoform.
4. SNARES and Coatomer.
5. Clearance Ratio.
6. Renal buffers.
7. Microanatomy of ovary.
8. Dalton's law and Henry's law.
9. Body Temperature and Pressure Saturated (BTPS).
10. Charles Sherrington.

III. Reasoning Out: **(4 x 5 = 20)**

1. Role of MiRNAs in Cardiac Stress Responses.
2. Abnormalities of Regulatory elements in Beta Thalassemias.
3. I cell disease and Lysosomes.
4. ACE inhibitor is contraindicated in hypertension due to Renal Artery Stenosis.

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