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**MANIPAL ACADEMY OF HIGHER EDUCATION**  
**MD (PHYSIOLOGY) DEGREE EXAMINATION – JUNE 2024**

**PAPER I**

Monday, June 10, 2024

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer All questions.**

✍ **Draw diagrams wherever necessary.**

✍ **Long Essays:**

1. Describe the cable properties of the nerve fibers. (15 marks)

2. Describe hemopoietic growth factors (15 marks)

3. **Write briefly on:**

3A. Contributions of Poiseuille

3B. Facilitated diffusion

3C. Natural anticoagulants

3D. Role of Yogic exercises in management of coronary artery disease and obesity

3E. “Walk-along” theory of muscle contraction

3F. Killer cells

3G. Autologous transfusion

3H. Metabolic systems that supply energy for muscle contraction during exercise

3I. Body temperature control mechanisms in human and lower animals (compare).

3J. “Indicator-dilution” method

(7 marks × 10 = 70 marks)



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**MANIPAL ACADEMY OF HIGHER EDUCATION**  
**MD (PHYSIOLOGY) DEGREE EXAMINATION – JUNE 2024**

**PAPER II**

Tuesday, June 11, 2024

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer ALL questions.**

✍ **Draw Diagrams wherever necessary**

✍ **LONG ESSAYS:**

1. Describe the determinants of arterial blood pressure. Explain their role in chronic hypertension.

(15 marks)

2. Describe how oxygen transport is affected in carbon monoxide poisoning.

(15 marks)

3. **SHORT ESSAYS:**

3A. Lung compliance

3B. Vagovagal reflexes in gastric acid secretion

3C. Hirschprung disease

3D. Special features of renal blood flow

3E. Cystometrogram

3F. Ventricular function curves

3G. Insulin-Glucagon ratio in fasting-to-fed state

3H. Leptins

3I. Body Mass index

3J. Pulmonary mechanoreceptors

(7 marks × 10 = 70 marks)



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**MANIPAL ACADEMY OF HIGHER EDUCATION**  
**MD (PHYSIOLOGY) DEGREE EXAMINATION – JUNE 2024**

**PAPER III**

Wednesday, June 12, 2024

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer ALL questions.**

✍ **Draw diagrams wherever necessary.**

✍ **LONG ESSAYS:**

1. Describe the organisation and functions of the motor control systems. (15 marks)

2. Discuss glucose homeostasis (15 marks)

3. **SHORT ESSAYS:**

3A. Taste transduction and pathways

3B. Receptor potentials

3C. Sensory versus motor homonculus

3D. Synaptic plasticity

3E. Puberty

3F. Immunological pregnancy tests

3G. Rigidity versus spasticity

3H. Intracellular signaling pathways

3I. Metabolic actions of thyroid hormones

3J. Pheochromocytoma

(7 marks × 10 = 70 marks)



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**MANIPAL ACADEMY OF HIGHER EDUCATION**  
**MD (PHYSIOLOGY) DEGREE EXAMINATION – JUNE 2024**

**PAPER IV**

Thursday, June 13, 2024

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer All questions**

✍ **Draw Diagrams wherever necessary**

✍ **Long Essays:**

1. Discuss the clinical features of basal ganglia diseases.

(15 marks)

2. Discuss the utility of electrocardiographic studies.

(15 marks)

3. **Short Essays:**

3A. Aphasia

3B. Recent advances in hemostatic tests

3C. Management of preload and afterload in cardiac failure.

3D. Treatment of peptic ulcer

3E. Thyroid function tests

3F. Pathogenesis of emphysema

3G. Galactorrhea

3H. Newer contraceptive methods

3I. Diuretics

3J. Eosinophilia

(7 marks × 10 = 70 marks)

