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MANIPAL ACADEMY OF HIGHER EDUCATION
MD (PHYSIOLOGY) DEGREE EXAMINATION – JULY 2023

PAPER I

Monday, July 03, 2023

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

- ✍ **Answer All questions.**
✍ **Draw diagrams wherever necessary.**

✍ **LONG ESSAYS:**

1. Discuss the studies that lead to the understanding of membrane potentials and membrane excitation.
(15 marks)

2. Discuss body water and its subdivisions
(15 marks)

3. **SHORT ESSAYS:**

- 3A. Buffers and isohydric principle
- 3B. Plasma osmolality
- 3C. Cellular protein synthesis
- 3D. Lysosomal diseases
- 3E. Gap junctions
- 3F. Second messenger system
- 3G. Antigen presenting cells
- 3H. Cell membrane proteins
- 3I. Whipple G.H.
- 3J. Vagusstoff

(7 marks × 10 = 70 marks)



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MANIPAL ACADEMY OF HIGHER EDUCATION
MD (PHYSIOLOGY) DEGREE EXAMINATION – JULY 2023

PAPER II

Tuesday, July 04, 2023

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

- ✍ **Answer ALL questions.**
- ✍ **Draw Diagrams wherever necessary**

✍ **LONG ESSAYS:**

1. Discuss the operation of counter-current system in kidneys. (15 marks)

2. Describe the salient features of the following special circulations.

- 2A. Coronary circulation
- 2B. Cerebral circulation
- 2C. Fetal circulation

(15 marks)

3. **SHORT ESSAYS:**

- 3A. Flow-volume curves to study ventilatory function
- 3B. Unique properties of cardiac muscle
- 3C. Decompression sickness
- 3D. Haldane effect
- 3E. Acidification of urine
- 3F. Esophageal phase of deglutition
- 3G. Malabsorption syndromes
- 3H. Metabolic rate
- 3I. Failure of enterohepatic circulation
- 3J. Nutritional anemia

(7 marks × 10 = 70 marks)



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MANIPAL ACADEMY OF HIGHER EDUCATION
MD (PHYSIOLOGY) DEGREE EXAMINATION – JULY 2023
PAPER III

Wednesday, July 05, 2023

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

- ✍ **Answer ALL questions.**
- ✍ **Draw diagrams wherever necessary.**

✍ **LONG ESSAYS:**

1. Describe the organization and functions of the vestibular system. (15 marks)

2. Discuss calcium homeostasis (15 marks)

3. **SHORT ESSAYS:**

- 3A. Olfactory receptors and transduction
- 3B. Receptive field properties
- 3C. Premotor area
- 3D. Associative learning
- 3E. Menopause
- 3F. Fetoplacental unit
- 3G. Diabetes insipidus
- 3H. Insulin receptors
- 3I. Metabolic actions of catecholamines
- 3J. Addison disease

(7 marks × 10 = 70 marks)



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MANIPAL ACADEMY OF HIGHER EDUCATION
MD (PHYSIOLOGY) DEGREE EXAMINATION – JULY 2023

PAPER IV

Thursday, July 06, 2023

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ **Answer All questions**

✍ **Draw Diagrams wherever necessary**

✍ **LONG ESSAYS:**

1. Discuss the clinical utility of electrocardiogram.

(15 marks)

2. Discuss pathogenesis and pharmacotherapy of peptic ulcer disease.

(15 marks)

3. **SHORT ESSAYS:**

3A. COX inhibitors

3B. Drug-induced Parkinsonism

3C. Opioid peptides

3D. Pontine crossed hemiplegia

3E. Pulsus paradoxus

3F. Melatonin

3G. Latent tetany

3H. Penis-at-12 syndrome

3I. Follistatins

3J. Lusitropic effect

(7 marks × 10 = 70 marks)

