

MANIPAL ACADEMY OF HIGHER EDUCATION
(Deemed University)

M.Sc. (FINAL) PHYSIOLOGY DEGREE EXAMINATION – JULY 2003

PAPER I: GENERAL PHYSIOLOGY, NERVOUS SYSTEM INCLUDING SPECIAL SENSES AND MUSCLES

Tuesday, July 01, 2003

Time available: 3 Hours

Maximum Marks: 100

- **Answer all the questions.**
 - **All questions carry equal marks.**
 - **Illustrate your answers with neatly drawn and correctly labelled diagrams wherever appropriate.**
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1. Describe the connections and functions of vestibulo cerebellum (20 marks)
2. Discuss the functions of Limbic System. (20 marks)
- 3A. Explain the travelling wave theory of pitch discrimination by the cochlea.
- 3B. Define dioptric power and outline various conditions when it is altered. (10+10 = 20 marks)
4. Discuss the physico-chemical basis of RMP and action potential in a nerve fiber. (20 marks)
- 5A. Explain the mechanisms by which the force of contraction of skeletal muscle is varied.
- 5B. Name the parasympathetic nerves and the organs they innervate. Mention their functions. (10+10 = 20 marks)

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M.Sc. (FINAL) PHYSIOLOGY DEGREE EXAMINATION – JULY 2003

PAPER II: CARDIOVASCULAR SYSTEM, RESPIRATORY SYSTEM, RENAL PHYSIOLOGY AND BLOOD

Wednesday, July 02, 2003

Time available: 3 Hours

Maximum Marks: 100

- **Answer all the questions.**
 - **All questions carry equal marks.**
 - **Illustrate your answers with neatly drawn and correctly labelled diagrams wherever appropriate.**
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1. Describe the haemo-respiratory changes during exercise. Add a note on 'Oxygen debt'.
(15+5 = 20 marks)
2. Discuss the principle of measurement and regulation of cerebral circulation.
(20 marks)
3. Describe the factors influencing diffusion of gases in the lung. How is the diffusion capacity of the lung for respiratory gases determined?
(20 marks)
4. Enumerate the functions of kidney and describe in detail anyone of them.
(20 marks)
5. Discuss the role of lymphocytes in immunity.
(20 marks)

M.Sc. (FINAL) PHYSIOLOGY DEGREE EXAMINATION – JULY 2003

PAPER III: GASTROINTESTINAL TRACT, ENDOCRINOLOGY AND REPRODUCTION
Thursday, July 03, 2003

Time available: 3 Hours

Maximum Marks: 100

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- Answer all the questions.
 - All questions carry equal marks.
 - Illustrate your answers with neatly drawn and correctly labelled diagrams wherever appropriate.
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1. Describe the functions of BILE. (20 Marks)

2. Describe the regulation of testicular function. (20 Marks)

3. Describe the action of thyroxine. (20 Marks)

4. Describe hypothalamus as an endocrine organ. (20 marks)

5. Write briefly on:
 - 5A. Glucagon
 - 5B. Menopause
 - 5C. Movements of small intestine
 - 5D. Brush border enzymes gut.(5 x 4 = 20 marks)



MANIPAL ACADEMY OF HIGHER EDUCATION

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M. Sc. (FINAL) PHYSIOLOGY DEGREE EXAMINATION – DECEMBER 2003

PAPER I: GENERAL PHYSIOLOGY, NERVOUS SYSTEM INCLUDING SPECIAL SENSES AND MUSCLES

Monday, December 01, 2003

Time available: 3 Hours

Maximum Marks: 100

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- ✍ Answer all the questions.
 - ✍ All questions carry equal marks.
 - ✍ Illustrate your answers with neatly drawn and correctly labelled diagrams wherever appropriate.
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1. Describe the origin, course and termination and function of pyramidal tract. Explain the effects of lesion of this tract at the level of:
a) Internal Capsule (Left) b) T₃ (Right).

(20 marks)

2. Trace Pain Pathway from the left little toe. Explain the mechanism of 'Descending Analgesia' system.

(20 marks)

- 3A. Explain: i) Dark adaptation ii) Depth of focus.
- 3B. Explain: i) Tympanic reflex ii) Impedance matching.

(20 marks)

4. Describe Mechanism of generation of Nerve Action Potential. Explain how is it conducted in a myelinated nerve.

(20 marks)

5. Describe the 'Sliding – filament' theory of muscle contraction with special emphasis on the role of ATP.

(20 marks)



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Tuesday, December 02, 2003

Time available: 3 Hours

Maximum Marks: 100

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- ✍ **Answer all the questions.**
 - ✍ **All questions carry equal marks.**
 - ✍ **Illustrate your answers with neatly drawn and correctly labelled diagrams wherever appropriate.**
 - ✍ **Provide experimental evidences where relevant**
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1. Describe various cardio vascular adjustments during and after muscular exercise.
(20 marks)

2. Outline the hazards of compatible and incompatible blood transfusions.
(20 marks)

- 3A. Give an account of factors influencing blood flow to any organ.
- 3B. Discuss the haemostatic mechanisms of the body.
(10 + 10 = 20 marks)

4. Describe in detail the characteristic features of pulmonary circulation.
(20 marks)

- 5A. Explain the role of skin in the regulation of body temperature.
- 5B. Describe the role of kidney in maintaining acid – base balance in the body.
(10 + 10 = 20 marks)

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M. Sc. (FINAL) PHYSIOLOGY DEGREE EXAMINATION – DECEMBER 2003

PAPER III: GASTROINTESTINAL TRACT, ENDOCRINOLOGY AND REPRODUCTION

Wednesday, December 03, 2003

Time available: 3 Hours

Maximum Marks: 100

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- ✍ Answer all the questions.
 - ✍ All questions carry equal marks.
 - ✍ Illustrate your answers with neatly drawn and correctly labelled diagrams wherever appropriate.
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1. Describe the gastric phase of HCl secretion and its control. (20 marks)

2. Describe the process of lactation. (20 marks)

3. Describe the metabolic actions of CORTISOL. (20 marks)

4. Describe the control of hormonal secretion. (20 marks)

5. Write briefly on:
 - 5A. Carbohydrate absorption in guts
 - 5B. Peristalsis
 - 5C. Follicular phase of menstrual cycle
 - 5D. Cretinism.

(5×4 = 20 marks)

