

MANIPAL ACADEMY OF HIGHER EDUCATION
(Deemed University)

MSc (FINAL) PHYSIOLOGY DEGREE EXAMINATION

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

Monday, 27 November 2000

Time available : 3 hours

Maximum marks : 100

♠ Answer all the questions

♠ Illustrate your answers with neatly drawn and correctly labelled diagrams wherever appropriate

1. Discuss central control of voluntary movement. How and to what extent is motor output controlled by sensory input?
(20 marks)
2. Describe the ionic basis of resting membrane potential and action potential in a nerve cell with experimental evidences.
(20 marks)
- 3A. Describe the mechanism of accommodation in the eyes for near response.
- 3B. Describe the functions of middle ear.
(10+10=20 marks)
4. Discuss the physiological processes involved in learning and memory.
(20 marks)
- 5A. Briefly write on otolith organs
- 5B. Briefly write on nerve conduction
(10+10=20 marks)

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

Tuesday, 28 November 2000

Time available : 3 hours

Maximum marks : 100

♠ Answer all the questions

♠ Illustrate your answers with neatly drawn and correctly labelled diagrams wherever appropriate

1. Describe factors influencing coronary circulation. Explain any one method of determining coronary blood flow. (20 marks)
2. Discuss the role of kidney in body fluid volume regulation. (20 marks)
3. Describe carbon dioxide transport with a special emphasis on 'Haldane effect'. (20 marks)
4. Describe the physiological principles involved in blood transfusion. (20 marks)
5. Write briefly on : (5x4=20 marks)
 - 5A. Sinus arrhythmia
 - 5B. Function of loop of Henle
 - 5C. Lung compliance
 - 5D. Price Jones Curve



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**PAPER III : *GASTROINTESTINAL TRACT, ENDOCRINOLOGY
AND REPRODUCTION***

Wednesday, 29 November 2000

Time available : 3 hours

Maximum marks : 100

♠ Answer all the questions

♠ Illustrate your answers with neatly drawn and correctly labelled diagrams wherever appropriate

1. Discuss the regulation of secretion of growth hormone. (20 marks)

2. Draw a graph to show the hormonal levels during a normal menstrual cycle. Explain how these hormones are responsible for the endometrial cycle. (20 marks)

3. Describe the following : (10+10=20 marks)
 - 3A. Second stage of deglutition
 - 3B. Peristalsis

4. Write briefly on : (10+10=20 marks)
 - 4A. Regulation of oxytocin secretion.
 - 4B. Effects of bilateral vasectomy in an adult.

- 5A. Explain the role of glucocorticoids in stress.
- 5B. Describe the changes in the foetal circulation at birth. (10+10=20 marks)

