

MANIPAL UNIVERSITY

M.Sc. MEDICAL (FINAL) PHYSIOLOGY DEGREE EXAMINATION – FEBRUARY 2009

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

Monday, February 02, 2009

Time available: 14:00 – 17:00 Hrs.

Maximum Marks: 100

✍ **All questions carry equal marks.**

✍ **Draw neat labelled diagram wherever appropriate.**

1. Describe in detail the mechanism and importance of 'active transport' that takes place across cell membranes giving suitable examples.
2. Describe the neuronal connections and functions of 'vestibulocerebellum'. Explain the features of vestibulocerebellar lesion.
3. Describe the mechanism of 'loudness and pitch discrimination' by the human ear.
4. Discuss the physiology of 'excitation-contraction coupling' in skeletal muscles.
5. Explain:
 - 5A. Motor aphasia.
 - 5B. Spinal shock.
 - 5C. Features observed in a lesion of prefrontal lobe.
 - 5D. Visual problem and the method of correction of a hypermetropic eye.

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

Tuesday, February 03, 2009

Time available: 14:00 – 17:00 Hrs.

Maximum Marks: 100

✍ **Answer ALL the questions.**

✍ **Draw neat labeled diagram wherever appropriate.**

1. What are the factors that help to maintain Venous Return? What is the effect of 'G' forces on Venous Return? Explain how an astronaut overcomes their effect.

(10+5+5 = 20 marks)

2. Explain why PAH clearance is equivalent to renal plasma flow.

(20 marks)

3. A patient who underwent total gastrectomy is suffering from macrocytic anaemia. Explain the physiological basis of this problem, its detection and treatment.

(20 marks)

4. Give an account of transport of carbon dioxide by the blood. Add a note on Haldane effect.

(15+5 = 20 marks)

5. Write notes on:

5A. Anatomical dead space

5B. Turbulence

5C. Platelet derived growth factor

5D. External urethral sphincter

(5×4 = 20 marks)

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PAPER III: GASTROINTESTINAL TRACT, ENDOCRINOLOGY AND REPRODUCTION

Wednesday, February 04, 2009

Time available: 14:00 – 17:00 Hrs.

Maximum Marks: 100

✍ **Answer ALL the questions.**

✍ **Draw neat labelled diagram wherever appropriate.**

1. What is the composition of Pancreatic Juice? Explain how its secretion is regulated.
(8+12 = 20 marks)
2. Name the hormones which are glycoproteins. Explain the role of any one of them.
(2+18 = 20 marks)
3. Name the 'Second Messengers' you know of. Explain the role of any one of them in detail.
(4+16 = 20 marks)
4. Describe the secondary sex characteristics in the male and name the hormone responsible.
How is the secretion of this hormone regulated?
(20 marks)
5. Write briefly on:
 - 5A. Inhibiting hormones of hypothalamus.
 - 5B. Hormones affecting skin colour.
(10+10 = 20 marks)