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## MANIPAL UNIVERSITY

MD (PHYSIOLOGY) DEGREE EXAMINATION – OCTOBER 2009

SUBJECT: PAPER I: GENERAL PHYSIOLOGY, NERVOUS SYSTEM, SPECIAL SENSES

Monday, October 05, 2009

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

**Answer ALL the questions. Draw diagrams wherever necessary.**

1. Describe the composition and methods for measuring fluid compartments. Discuss the regulation and disorders of ECF.  
(20 marks)
2. Describe the patho-physiology of pain in detail. Add a note on its clinical disorders.  
(20 marks)
3. Discuss in detail how posture and equilibrium are maintained.  
(20 marks)
4. Describe the events involved in neuromuscular transmission. Classify neuromuscular blocking agents and discuss their mechanism of action.  
(20 marks)
5. Write briefly on:
  - 5A. Color vision and color blindness.
  - 5B. Cochlear Potentials.

(10+10 = 20 marks)



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## MANIPAL UNIVERSITY

MD (PHYSIOLOGY) DEGREE EXAMINATION – OCTOBER 2009

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

Tuesday, October 06, 2009

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ Answer ALL the questions. ALL questions carry equal marks.

1. Describe carbon dioxide transport with a special emphasis on Haldane effect.
2. Describe the physiological principles involved in blood transfusion and effects of mismatched blood transfusion.
3. Discuss in detail the measurement and regulation of cardiac output.
4. Describe the micturition reflex in detail. Explain the physiological basis of disorders of micturition.
5. Compare the dynamics of pulmonary circulation and systemic circulation.



## MANIPAL UNIVERSITY

## MD (PHYSIOLOGY) DEGREE EXAMINATION – OCTOBER 2009

SUBJECT: PAPER III: GASTROINTESTINAL TRACT, ENDOCRINOLOGY AND REPRODUCTION

Wednesday, October 07, 2009

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ Answer ALL the questions. Draw diagrams wherever necessary.

1. Discuss the role of gastro-intestinal system as an endocrine organ.  
(20 marks)
2. Discuss the physiology and pathophysiology of fat digestion.  
(20 marks)
3. Discuss the physiological and hormonal changes occurring in a female in pregnancy.  
(20 marks)
4. Write briefly on:
  - 4A. Hypothalamo-hypophyseal portal system
  - 4B. Mineralocorticoids
  - 4C. Increased growth hormone secretion
  - 4D. Glucagon

(10×4 = 40 marks)



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## MANIPAL UNIVERSITY

MD (PHYSIOLOGY) DEGREE EXAMINATION – OCTOBER 2009

SUBJECT: PAPER IV: RECENT ADVANCES IN PHYSIOLOGY, APPLIED AND  
CLINICAL PHYSIOLOGY

Thursday, October 08, 2009

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ Answer **ALL** the questions. **ALL** questions carry equal marks.

1. Describe the ECG changes in
  - 1A. Ischaemia and myocardial infarction
  - 1B. Different degrees of heart block
  - 1C. Cardiac chamber enlargement
2. Describe the mechanism of cellular immunity in detail.
3. Discuss acclimatization to high altitude.
4. Describe different types of aberrant sexual development.

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## MANIPAL UNIVERSITY

### MD (PHYSIOLOGY) DEGREE EXAMINATION – APRIL 2009

SUBJECT: PAPER I: GENERAL PHYSIOLOGY, NERVOUS SYSTEM, SPECIAL SENSES

Wednesday, April 01, 2009

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ Answer **ALL** the questions. **ALL** questions carry equal marks.

✍ Draw diagrams wherever necessary.

1. Discuss the transport mechanisms across cell membranes with suitable examples.
2. Describe the modern concepts of excitation-contraction coupling.
3. Give the pain pathway from face and limbs. Describe how pain sensation is modulated.
4. Give the components of limbic system and give its connections. Explain its function.
5. Describe the auditory pathway and special features of auditory sensations.



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MD (PHYSIOLOGY) DEGREE EXAMINATION – APRIL 2009

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

Thursday, April 02, 2009

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ Answer ALL the questions. ALL questions carry equal marks.

✍ Draw diagrams wherever necessary. Substantiate your answers with evidences.

1. Discuss in detail about Immunity and the role of lymphocytes in it. Add a note on auto-immune diseases.
2. Describe the organization of respiratory centers. Discuss the neural regulation of respiration in detail.
3. Describe normal E.C.G. with the methods of recording. Add a note on cardiac arrhythmias.
4. Discuss the renal function tests in detail and add a note on their clinical application.
5. Write notes on:
  - 5A. Myocardial contractility.
  - 5B. Micturition reflex.



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## MANIPAL UNIVERSITY

MD (PHYSIOLOGY) DEGREE EXAMINATION – APRIL 2009

SUBJECT: PAPER III: GASTROINTESTINAL TRACT, ENDOCRINOLOGY  
AND REPRODUCTION

Friday, April 03, 2009

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ Answer ALL the questions. ALL questions carry equal marks.

✍ Draw diagrams wherever necessary.

1. Explain in detail how various factors interact to regulate the growth of an individual from birth to death.
2. Discuss how the uterine smooth muscle is regulated by neural and endocrine factors.
3. Give the composition and functions of pancreatic juice. Explain how its secretion is regulated.
4. Explain briefly:
  - 4A. Functions of the large intestine.
  - 4B. Physiological basis of treatment of diarrhea.
5. List the local hormones. Explain in detail the actions of any one of them.



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## MANIPAL UNIVERSITY

MD (PHYSIOLOGY) DEGREE EXAMINATION – APRIL 2009

SUBJECT: PAPER IV: RECENT ADVANCES IN PHYSIOLOGY, APPLIED AND  
CLINICAL PHYSIOLOGY

Saturday, April 04, 2009

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ Answer ALL the questions. ALL questions carry equal marks.

✍ Draw diagrams wherever necessary.

1. Define 'Shock'. Discuss the current concepts regarding the pathophysiology of this condition and its treatment.
2. Discuss the role played by cerebellum in motor activity. Correlate the signs and symptoms of cerebellar disease with its function.
3. Describe the physiological basis of changes that occur during pregnancy and their hormonal regulation.
4. Discuss how the intraocular pressure is maintained during health. Explain the physiological basis of measures adopted to reduce it.
5. Write notes on:
  - 5A. Haemoglobinopathies
  - 5B. Malignant hyperthermia

