Reg. No.										

MANIPAL UNIVERSITY

MD (PHYSIOLOGY) DEGREE EXAMINATION – APRIL 2017

SUBJECT: PAPER I: GENERAL PHYSIOLOGY INCLUDING HISTORY OF PHYSIOLOGY

Monday, April 03, 2017

Time: 14:00 – 17:00 Hrs. Max. Marks: 100

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

- **Long Essay:**

1. Explain the exchange of materials between the interstitial fluid and cell through cell membrane.

(15 marks)

2. Discuss the mechanism of cell mediated immunity.

(15 marks)

3. **Write Short essays on:**

3A. Discuss the energy supply for muscle contraction during rest and exercise.
3B. Compare and contrast isometric and isotonic exercises.
3C. Explain in detail the excitation-contraction coupling in skeletal muscle.
3D. Explain the effects of injury to nerve in peripheral nerves.
3E. Explain the cell division in a somatic cell. How does it differ from a germ cell?
3F. Explain the formation of lymph with the help of Starling's forces.
3G. What are the different body fluid compartments? How they are measured?
3H. What is Pranayama? What is its physiological effect?
3I. Contributions by Sir A. S. Paintal to Physiology.
3J. Types of RNA and their functions.

(7 marks ×10 = 70 marks)

Reg. No.										

MANIPAL UNIVERSITY

MD (PHYSIOLOGY) DEGREE EXAMINATION – APRIL 2017

SUBJECT: PAPER II: SYSTEMIC PHYSIOLOGY (SYSTEM PROVIDING TRANSPORT, NUTRITION AND ENERGY) INCLUDING COMPARATIVE PHYSIOLOGY

Tuesday, April 04, 2017

Time: 14:00 – 17:00 Hrs. Max. Marks: 100

✍ **Answer ALL the questions.**

✍ **Long Essay:**

1. Describe how heart rate is regulated. Add a note on cardiac arrhythmias.

(15 marks)

2. Describe the neural and chemical regulation of respiration.

(15 marks)

3. **Write Short notes on:**

3A. Ventricular action potential with its ionic basis.
3B. Mechanisms involved in regulation of local blood flow to an organ.
3C. Ventilation perfusion ratio.
3D. Explain the transport of carbon dioxide in blood.
3E. Explain the mechanism of secretion of gastric HCl. Add a note on peptic ulcer.
3F. Explain in detail the digestion and absorption of fats. Add a note on steatorrhoea.
3G. GI hormones.
3H. Water reabsorption in the renal tubule.
3I. Discuss renal buffers.
3J. Explain the micturition reflex in detail. Add a note on bladder dysfunctions.

(7 marks × 10 = 70 marks)

Reg. No.										

MANIPAL UNIVERSITY

MD (PHYSIOLOGY) DEGREE EXAMINATION – APRIL 2017

SUBJECT: PAPER III: SYSTEMIC PHYSIOLOGY (SYSTEM CONCERNED WITH PROCREATION, REGULATION AND NEURAL CONTROL)

Wednesday, April 05, 2017

Time: 14:00 – 17:00 Hrs. Max. Marks: 100

✍ **Answer ALL the questions.**

✍ **Long Essay:**

1. Draw diagrams to show the pathways for pain perception. Describe the location and working of the endogenous analgesia systems.

(15 marks)

2. Describe how hormones help in coping with Stress.

(15 marks)

3. **Write Short essays on:**

3A. Structural peculiarities of retina
3B. Audible sound pitch discrimination
3C. Puberty
3D. Hypophysiotropic hormones
3E. Impotence
3F. Cortical motor areas
3G. Phasic stretch reflex
3H. Dyslexia
3I. Kluver-Bucy syndrome
3J. Tardive dyskinesia

(7 marks ×10 = 70 marks)

Reg. No.										

MANIPAL UNIVERSITY

MD (PHYSIOLOGY) DEGREE EXAMINATION – APRIL 2017

SUBJECT: PAPER IV: APPLIED PHYSIOLOGY INCLUDING RECENT ADVANCES

Thursday, April 06, 2017

Time: 14:00 – 17:00 Hrs. Max. Marks: 100

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

- **Long Essay:**

1. Discuss pathophysiology of hypothyroidism.

(15 marks)

2. Discuss diagnosis of anemia.

(15 marks)

3. **Write Short essay on:**

3A. Endocrine causes of growth retardation
3B. Multiple sclerosis
3C. Cardiac arrhythmias
3D. Renal function tests
3E. Shock lung
3F. Insulin therapy
3G. Amylin
3H. Mirror neurons
3I. Voltage-clamp technique
3J. Importance of sample size in research and biostatistics

(7 marks × 10 = 70 marks)