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MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD SEMESTER M.Sc. (MEDICAL PHYSIOLOGY) DEGREE EXAMINATION – FEBRUARY/MARCH 2022

SUBJECT: C V S (MPY 701)

Monday, February 28, 2022

Time: 14:00 – 16:30 Hrs.

Maximum Marks: 50

1. Define cardiac output. Give its normal value. Explain the factors regulating cardiac output. Name two methods of determining cardiac output.
(1+1+6+2 = 10 marks)

2. Define blood pressure. Give its normal value. Explain the short term regulation of blood pressure.
(1+1+8 = 10 marks)

3. **Write short notes on:**
 - 3A. Explain triple response.
 - 3B. Give the normal coronary blood flow. Explain the phasic changes that occur in coronary blood flow.
 - 3C. Draw a normal ECG in limb lead II. What is P-R interval? Give its normal value.
 - 3D. Draw and label ventricular action potential and mention the ionic basis for different phases.
 - 3E. Describe the propagation of cardiac impulse.
 - 3F. What is circulatory shock? Explain the features and physiological basis of hypovolemic shock.
(5 marks × 6 = 30 marks)



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THIRD SEMESTER M.Sc. (MEDICAL PHYSIOLOGY) DEGREE EXAMINATION – FEBRUARY/MARCH 2022

SUBJECT: RENAL (MPY 703)

Tuesday, March 01, 2022

Time: 14:00 – 16:30 Hrs.

Maximum Marks: 50

1. Describe how concentrated urine is formed by the nephrons.
2. Define glomerular filtration rate. Give the normal value. Explain in detail the factors affecting glomerular filtration rate. Add a note on Inulin clearance.

(10 marks × 2 = 20 marks)

3. **Write short notes on:**

- 3A. Explain briefly the micturition reflex.
- 3B. Explain the role of skin in the temperature regulation.
- 3C. Explain the role of renal buffers in acid base balance.
- 3D. Discuss in detail the renal handling of glucose.
- 3E. Explain the special features of renal circulation.
- 3F. List the components of juxtaglomerular apparatus. Explain its functions.

(5 marks × 6 = 30 marks)



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THIRD SEMESTER M.Sc. (MEDICAL PHYSIOLOGY) DEGREE EXAMINATION – FEBRUARY/MARCH 2022

SUBJECT: RESPIRATORY (MPY 705)

Wednesday, March 02, 2022

Time: 14:00 – 16:30 Hrs.

Maximum Marks: 50

1. What is acclimatization? Discuss the changes occurring during acclimatization. Add a note on mountain sickness.

(1+6+3 = 10 marks)

2. Describe in detail the various lung volumes and capacities. Add a note on timed vital capacity.

(6+4 = 10 marks)

3. **Write short notes on:**

3A. Explain various types of hypoxia. What is the significance of pure oxygen therapy in different types of hypoxia?

3B. Explain the respiratory system adjustments during exercise.

3C. Explain the mechanism of neural regulation of respiration.

3D. Describe the decompression sickness.

3E. Explain ventilation perfusion ratio.

3F. Describe compliance of the lungs. Add a note on its significance.

(5 marks × 6 = 30 marks)

