

Reg. No.

MANIPAL ACADEMY OF HIGHER EDUCATION  
THIRD SEMESTER M.Sc. (MEDICAL PHYSIOLOGY) DEGREE  
EXAMINATION – JANUARY 2020

SUBJECT: C V S (MPY 701)

Monday, January 06, 2020

Time: 14:00 – 16:30 Hrs.

Maximum Marks: 50

☒ ALL questions are compulsory.

☒ Draw diagrams, flow charts and graphs wherever appropriate.

☒ Long Essays:

1. Describe the electrical responses with its ionic basis in ventricular myocytes and sinoatrial node.

2. Describe the special features and regulation of coronary circulation.

(10 marks × 2 = 20 marks)

3. Short Essays:

3A. Baroreceptor response to changing arterial pressure

3B. Effect of radius of blood vessels on blood flow and its neural regulation

3C. Principle of electrocardiography and uses

3D. Events in left ventricular systole

3E. Factors affecting venous return

3F. Frank-Starling law of heart

(5 marks × 6 = 30 marks)



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**THIRD SEMESTER M.Sc. (MEDICAL PHYSIOLOGY) DEGREE**  
**EXAMINATION – JANUARY 2020**

**SUBJECT: RENALS (MPY 703)**

Tuesday, January 07, 2020

Time: 14:00 – 16:30 Hrs.

Maximum Marks: 50

☞ **Answer ALL the questions.**

☞ **Long Essays:**

1. Define glomerular filtration rate. Give the normal value. Explain in detail the factors affecting glomerular filtration rate. Add a note on measurement of GFR.
2. Describe the process of filling and emptying of urinary bladder.

(10 marks × 2 = 20 marks)

3. **Write short Notes on:**

- 3A. Explain the mechanism of H<sup>+</sup> secretion in the renal tubules.
- 3B. Explain the role of vasa recta in the countercurrent mechanism.
- 3C. Explain the types of water reabsorption in the different parts of renal tubules.
- 3D. Explain the special features of renal circulation.
- 3E. Describe in detail the tubuloglomerular feed back
- 3F. Explain the thermoregulatory changes initiated when a person is exposed to a cold environment.

(5 marks × 6 = 30 marks)



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EXAMINATION – JANUARY 2020

SUBJECT: RESPIRATORY (MPY 705)

Wednesday, January 08, 2020

Time: 14:00 – 16:30 Hrs.

Maximum Marks: 50

- ✍ ALL questions are compulsory.
- ✍ Draw diagrams, flow charts and graphs wherever appropriate.

✍ Long Essays:

1. Describe the role of chemoreceptors in the regulation of respiration.
2. With a diagram, represent the pressure changes in alveoli, and the pleural space during tidal respiration. Explain how compliance affects lung function.

(10 marks × 2 = 20 marks)

3. Short Essays:

- 3A. Functions of upper respiratory tract.
- 3B. Oxygen-Hemoglobin dissociation curve.
- 3C. Classification of hypoxia with examples.
- 3D. Spirogram.
- 3E. Chloride shift.
- 3F. Factors affecting diffusion of gases across the respiratory membrane.

(5 marks × 6 = 30 marks)

