

# Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I (CBME) Degree Examination - 09-Feb-2023

Time: Three Hours

Max. Marks: 100 Marks

## PHYSIOLOGY – PAPER-I (RS-4)

Q.P. CODE: 1022

(QP contains two pages)

Your answers should be specific to the questions asked

Draw neat, labeled diagrams wherever necessary

### LONG ESSAYS

2x10=20 Marks

1. Discuss the cardiorespiratory changes seen in a person doing moderate isotonic exercise

Or

Define Blood Pressure. List the factors regulating blood pressure. Add a note on long term regulation of blood pressure

2. Explain the mechanism of HCL secretion in gastric juice and discuss the factors regulating it

### SHORT ESSAYS

8x5=40 Marks

3. Explain the pressure changes in the lung during normal respiration
4. Explain the organization of body fluids compartments. Mention one method to measure extra cellular fluid volume and total body water
5. Discuss the factors regulating glomerular filtration
6. A 20-year-old male was brought to the casualty following a road traffic accident. On examination his extremities were found to be cold and clammy, heart rate 102/min and blood pressure 70/50 mm of Hg
  - a) Explain the physiological basis of cold clammy extremities
  - b) Classify shock and state Marey's law
7. Explain the intrinsic mechanism of coagulation
8. Explain the Bohr effect and Haldane effect
9. Discuss the mechanism of fat digestion and absorption in gastrointestinal tract
10. Describe the buffer systems present in renal tubules

### SHORT ANSWERS

10x3=30 Marks

11. Mention the physiological basis of increased ventilation perfusion ratio in apex of lung
12. Classify anaemia on the basis of morphology with examples
13. Mention the causes for the waves of Jugular venous pulse
14. List different layers of respiratory membrane
15. Explain the basis of using phototherapy for physiological jaundice
16. Explain the basis of megaloblastic anemia seen after gastrectomy
17. Enumerate the function of platelets

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18. Explain Laplace law with reference to urinary bladder
19. List the properties of cardiac muscle
20. Explain the mechanism of action of loop diuretics

## Multiple Choice Questions

10x1=10 Marks

- 21 i) Cephalic phase of gastric juice secretion is controlled mainly by
  - A. Neural factors
  - B. Hormonal factors
  - C. Gastric distension
  - D. Presence of proteins in stomach
- 21 ii) Atrial systole coincides with ventricular
  - A. Isometric contraction
  - B. Rapid ejection phase
  - C. Last rapid filling phase
  - D. Isometric relaxation
- 21 iii) Descending limb of loop of Henle is permeable to all **EXCEPT**
  - A. Water
  - B. Sodium
  - C. Urea
  - D. Glucose
- 21 iv) PCO<sub>2</sub> of alveolar air in mm of Hg
  - A. 104
  - B. 46
  - C. 40
  - D. 27
- 21 v) Maximum velocity of conduction in the cardiac musculature is seen in
  - A. SA node
  - B. AV node
  - C. Bundle of His
  - D. Purkinje fibers
- 22 i) Edema can develop due to
  - A. Decrease in capillary hydrostatic pressure
  - B. Increase in interstitial fluid hydrostatic pressure
  - C. Decrease in capillary oncotic pressure
  - D. Decrease in interstitial fluid colloid osmotic pressure
- 22 ii) The plasma level at which a substance first appears in urine is
  - A. Renal threshold
  - B. Renal clearance
  - C. Tubular maximum
  - D. Filtered load
- 22 iii) Chief cells of gastric gland secrete
  - A. Hydrochloric acid
  - B. Mucous
  - C. Pepsinogen
  - D. Intrinsic factor

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- 22 iv) Decompression sickness is due to
- A. Increased partial pressure of nitrogen in alveolar air
  - B. Bubbling of CO<sub>2</sub> in tissues
  - C. Decreased PO<sub>2</sub> in atmospheric air
  - D. Nitrogen bubbles in body fluids
- 22 v) Warfarin acts as an anticoagulant by decreasing
- A. Calcium content in blood
  - B. Active form of vitamin K
  - C. Thrombin level
  - D. Platelet aggregation

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