

Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I (CBME) Degree Examination - 29-Apr-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. Define cardiac output. Explain in detail the factors regulating cardiac output. Add a note Fick's principle
2. Enumerate different types of chemoreceptors. Explain their role in chemical regulation of respiration. Add a note on breath holding

SHORT ESSAYS

8x5=40 Marks

3. Explain the intrinsic mechanism of blood clotting
4. Discuss the characteristic features of coronary circulation
5. Explain the counter current multiplier system in kidney
6. Discuss the mechanism of cell mediated immunity
7. A male aged 55 years was brought to emergency department with history of retro sternal pain since morning, pain in epigastrium radiating to left shoulder, profuse sweating. He is a known diabetic and hypertensive on irregular treatment
 - a) What is the probable diagnosis?
 - b) What are the expected ECG changes in this condition?
 - c) Why is the subendocardium more prone to Ischaemia?
8. With a neat labelled diagram, explain the different lung volumes and capacities
9. Discuss the functions of exocrine pancreatic juice and its regulation
10. Explain the micturition reflex and its higher control

SHORT ANSWERS

10x3=30 Marks

11. What is ejection fraction? Mention its clinical significance
12. Explain the significance of Timed Vital Capacity
13. Explain the physiological basis of anaemia in kidney disease
14. List the functions of saliva
15. Explain the genesis of resting membrane potential
16. Explain type I hypersensitivity reaction
17. Explain the physiological basis of lactose intolerance
18. Enumerate the functions of lymph
19. What is respiratory acidosis? Mention one condition causing it
20. Explain the pathophysiology of peptic ulcer

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Multiple Choice Questions

10x1=10 Marks

- 21 i) The pacemaker potential is due to:
- Fast Na^+ channel
 - Na^+ entry through funny channels
 - Slow Ca^{++} efflux
 - Rapid repolarization
- 21 ii) True regarding endothelin-1 is all **EXCEPT**
- Broncho dilatation
 - Vasoconstriction
 - Decreased GFR
 - Local regulation
- 21 iii) Measurement of anatomic dead space is by:
- O_2 breath test
 - Helium dilution test
 - N_2 breath test
 - pCO_2
- 21 iv) Oxygen therapy is least useful in:
- Anaemia
 - ARDS
 - Alveolar damage
 - COPD
- 21 v) In renal disease albumin appears in urine because:
- Of its high concentration in plasma
 - Negative charges in the glomerular wall are dissipated
 - High albumin: globulin ratio
 - Tubular epithelial cells are sensitive to albumin
- 22 i) Which of the following does not form a filtration barrier in nephrons:
- Podocytes
 - Mesangium
 - Endothelial cell
 - Basement membrane
- 22 ii) Clathrin is used in:
- Receptor mediated endocytosis
 - Exocytosis
 - Cell to cell adhesion
 - Plasma membrane
- 22 iii) Major regulator of inter digestive myo-electric complexes:
- VIP
 - GIP
 - Motilin
 - Neurotensin

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- 22 iv) Equilibrium potential for an ion is calculated by using:
- A. Gibbs – Donnan equilibrium
 - B. Nernst equation
 - C. Goldman equation
 - D. Donnan equilibrium
- 22 v) Glycosylated haemoglobin is known to be a good indicator of:
- A. Blood cholesterol levels
 - B. Blood triglyceride levels
 - C. Plasma protein levels
 - D. Blood glucose levels

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