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 **2 x 10 = 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 **8 x 5 = 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 **10 x 3 = 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
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 **10 x 1 = 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) PCO2 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

22 iv) Decompression sickness is due to
- A. Increased partial pressure of nitrogen in alveolar air
- B. Bubbling of CO2 in tissues
- C. Decreased PO2 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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