# Rajiv Gandhi University of Health Sciences, Karnataka

**MBBS Phase – I (CBME) Degree Examination - 14-Aug-2024**

**Time: Three Hours** **Max. Marks: 100**

## 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. Define blood pressure. Explain in detail about regulation of blood pressure. Add a note on hypertension

2. Discuss in detail the uptake, transport and release of $O_2$ from lungs to tissues

**SHORT ESSAYS** **8 x 5 = 40 Marks**

3. Classify anticoagulants with examples. Discuss the physiological basis of action of any two anti coagulants
4. Describe the left ventricular pressure changes during cardiac cycle with a neat labelled diagram
5. Define Glomerular Filtration Rate (GFR). Discuss the factors affecting GFR
6. Describe the mechanism of cell mediated immunity
7. A 60 year old woman is admitted to the hospital after complaining of extreme fatigue, weakness, dyspnoea and swelling of her ankles. She has Orthopnea and previous history of chest pain and shortness of breath upon exertion. Her physical examination reveals cyanosis, distended neck veins, ascites and cold clammy skin. Her ejection fraction is 0.30
   a) What is the probable diagnosis?
   b) What is the physiological basis of cyanosis and easy fatigability?
   c) What is the physiological basis of treating this condition with diuretics?
8. Describe the synthesis and actions of surfactant
9. Describe briefly mechanism of secretion of HCl and its regulation
10. Discuss the renal regulation of acid-base balance

**SHORT ANSWERS** **10 x 3 = 30 Marks**

11. Draw a neat labelled diagram of normal lead II ECG
12. Compare and contrast intra pleural and intra pulmonary pressure
13. What is the role of iron and Vit B12 in erythropoiesis?
14. Explain the pathophysiology of gastro-oesophageal reflux disease
15. Write a note on apoptosis
16. List the indications and hazards of blood transfusion
17. Enumerate the functions of bile juice
18. Classify jaundice. Give one example for each
19. What is the physiological basis of dialysis therapy?
20. List the types of movements in small intestine and large intestine

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**Multiple Choice Questions** **10 x 1 = 10 Marks**

21 i) Starling's Law implies:
- A. Increased venous return leads to increased cardiac output
- B. Increased discharge leads to increased cardiac output
- C. Increased heart rate leads to increased cardiac output
- D. Increased blood pressure leads to increased cardiac output

21 ii) Seat of peripheral resistance is
- A. Large arteries
- B. Arterioles
- C. Capillaries
- D. Venules

21 iii) Ventilation perfusion ratio is maximum at:
- A. Apex of lung
- B. Base of lung
- C. Posterior lobe of lung
- D. Middle of the lung

21 iv) Routine spirometer cannot estimate:
- A. Vital capacity
- B. Residual volume
- C. Expiratory reserve volume
- D. Tidal volume

21 v) Glomerular filtration rate is increased when:
- A. Plasma oncotic pressure is increased
- B. Glomerular hydrostatic pressure is decreased
- C. Tubular hydrostatic pressure is increased
- D. Renal blood flow is increased

22 i) Angiotensin II causes all of the following except
- A. Stimulation of thirst
- B. Aldosterone secretion
- C. Increased ADH secretion
- D. Vasodilatation

22 ii) Cell shape and motility is provided by:
- A. Centrosomes
- B. Microtubules
- C. Golgi apparatus
- D. Nucleus

22 iii) Resting membrane potential is close to the isoelectrical potential of:
- A. $Na^+$
- B. $K^+$
- C. $Cl^+$
- D. $Mg^{++}$

22 iv) Vit $B_{12}$ is mainly absorbed from:
- A. Terminal ileum
- B. Duodenum
- C. Jejunum
- D. Stomach

22 v) Neutropenia is caused due to:
- A. Acute bacterial infections
- B. Myocardial infarction
- C. Severe burns
- D. Typhoid fever

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