

**KALOJI NARAYANA RAO UNIVERSITY OF
HEALTH SCIENCES
WARANGAL, TELANGANA STATE-506 002
MBBS FIRST YEAR EXAMINATIONS:
SEPTEMBER, 2025
PHYSIOLOGY
PAPER-I**

Time: 3 Hours

Max Marks: 100

Note: Answer all questions

Give Diagrammatic representation wherever necessary

Multiple Choice Questions:

1. Hering Breuer Reflex protects lung from
 - a) Circulating Toxins
 - c) Overinflation
 - b) Circulating Phagocytes
 - d) Under Ventilation
 2. Which of the following organs has the greatest blood flow per 100g of tissue?
 - a) Brain
 - c) Kidney
 - b) Skin
 - d) Liver
 3. The most appropriate index of left ventricular afterload is
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- a) Systolic arterial pressure
 - c) Systemic vascular resistance
 - b) Mean arterial pressure
 - d) Left ventricular systolic pressure
4. Major source of ammonia production in renal tubular cell is by
- a) Deamination of glutamine
 - b) Deamination of glutamic acid
 - c) Deamination of other amino acids, glycine, asparagine, alanine
 - d) Comes directly from arterial blood
5. Cholergics are the substances which causes
- a) Contraction of gall bladder
 - c) Neutralization of acid from stomach
 - b) Increase biliary secretion from liver
 - d) Solubility of fats in micelles
6. First heart sound (HS1):
- a) Marks the onset of ventricular systole
 - b) Caused by the closure of semilunar valves
 - c) Best heard over aortic and pulmonary areas
 - d) Characterized by high pitch and sharp sound
7. The renal "countercurrent" mechanism is dependent upon the anatomic relationship between:
- a) The distal tubule and the macula densa
 - c) The loop of Henle and the vasa recta
 - b) The loop of Henle and the macula densa
 - d) The glomerulus and the afferent and efferent
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8. The adhesion of platelets to subendothelial collagen is impaired in the absence of

- a) Von Willebrand factor
- c) Heparin
- b) Plasmin
- d) Antithrombin III

9. The function of axonemal dynein is?

- a) Moves particles to the 'minus' end of microtubule.
- c) Responsible for the beating of flagella and cilia
- b) Moves particles towards 'plus' end of microtubule
- d) Binds to actin and produce motion by bending their neck region.

10. Cholesterol content of a cell membrane influences which of the following characteristics of biological membrane

- a) Ion permeability
- c) Glycosylation
- b) Fluidity
- d) Hydrophobicity

Essay/ Long Answer Questions:

11. An elderly male came to hospital with history of chest pain and breathing difficulty on and off for 2 days. His ECG showed ST segment depression and echocardiography showed that his stroke volume in $<50\%$.

- a) Identify the condition.
- ~~b) Define stroke volume, cardiac output and cardiac~~

index with their normal value.

c) Describe the factors regulating cardiac output.

d) Define Fick's principle. Mention the methods to measure cardiac output.

12. A young male went for trekking 2500m above sea level. On arrival to his stay, he complained of breathlessness. His Spo₂ was 70% in room air.

a) Identify the condition

b) Describe the classification and pathophysiology of Hypoxia

c) Enumerate the treatment for the types of Hypoxia

d) Discuss on Hyperbaric O₂ therapy

Short Answer Questions:

13. Describe the mechanism of HCl secretion in stomach.

14. Name the different body fluid compartments. Give the composition of extracellular and intracellular fluids.

Mention the methods to measure ECF.

15. Describe Defecation reflex.

16. Classify leukocytes. Describe the stages of leucopoiesis.

17. Define haemostasis. Describe the extrinsic mechanism of coagulation.

18. Enumerate the measures that strengthen the doctor patient relationship.

19. Briefly explain water reabsorption by Kidney.

Very Short Answer Questions:

20. Draw a neat labelled diagram of nerve action potential mentioning reasons for each phase.
21. List functions of plasma proteins.
22. Draw a neat labelled diagram of Juxtaglomerular apparatus.
23. Define uniport, symport and antiport with examples.
24. Define urea clearance. How is it calculated. Name any other 2 substances used to measure renal clearance.
25. Write the significance of Dietary fibers.

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