Rajiv Gandhi University of Health Sciences, Karnataka

MBBS Phase – I (CBME) Degree Examination - 06-Dec-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. Describe the different stages of erythropoiesis with the help of a neat labelled diagram. Explain the factors influencing erythropoiesis

2. Describe the renal handling of sodium. Add a note on tubulo-glomerular feedback mechanism.

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

3. Explain the Baroreceptor reflex mechanism in blood pressure regulation
4. Describe the acclimatization changes seen in natives of high altitude along with their physiological basis
5. Explain the active transport mechanisms across cell membrane
6. A 40 yr old man presented with severe abdominal pain in casualty. History revealed chronic intake of Nonsteroidal anti-inflammatory drugs (NSAIDs). On examination the duty Medical Officer confirmed that it was a case of gastric ulcer
   a) Interpret the role played by NSAIDs in development of gastric ulcer
   b) Justify the use of proton pump inhibitors in the treatment of gastric ulcers
7. Briefly explain the chemical regulation of respiration
8. Enumerate the special features of coronary circulation
9. Mention the composition of pancreatic juice. Describe the regulation of pancreatic secretion
10. Illustrate the innervation of urinary bladder and describe a normal cystometrogram

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

11. List the functions of white blood corpuscles
12. Explain the effect of sympathetic stimulation on pacemaker potential with the help of a diagram
13. What is oxygen debt?
14. Enumerate the steps occurring during the pharyngeal phase of deglutition
15. Depict the extrinsic pathway of coagulation in the form of a flow chart
16. Explain the causes of first and second heart sounds
17. Mention the type of hypoxia seen in cyanide poisoning and explain the basis of treatment
18. State Landsteiner's law
19. Define Mean arterial pressure and Pulse pressure
20. List the clinical features of hypovolemic shock

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

21 i) Optimal pH for the action of salivary amylase is
- A. 4.2
- B. 6.7
- C. 7.4
- D. 8.2

21 ii) Progressive lengthening of the PR interval until a ventricular beat is dropped is known as
- A. Wenkebach phenomenon
- B. Stokes Adams syndrome
- C. Fascicular block
- D. Third degree heart block

21 iii) Renal plasma flow is measured by clearance of
- A. Inulin
- B. Creatinine
- C. P-aminohippuric acid
- D. Urea

21 iv) Maximum volume of gas that can be moved into and out of lungs in one min by voluntary effort is known as
- A. Maximum voluntary ventilation
- B. Pulmonary ventilation
- C. Respiratory minute volume
- D. Residual volume

21 v) The principal site of peripheral resistance is
- A. Capillaries
- B. Veins
- C. Large arteries
- D. Arterioles

22 i) Extensive liver damage results in reduction of the following plasma proteins **EXCEPT**
- A. Albumin
- B. Gamma globulin
- C. Beta globulin
- D. Fibrinogen

22 ii) The minimum volume of urine that must be excreted is called
- A. Obligatory urine volume
- B. Free water clearance
- C. Concentrating volume
- D. Diluting volume

22 iii) The type of movement seen characteristically in small intestine are all **EXCEPT**
- A. Pendular movements
- B. Mass movement
- C. Segmentation contractions
- D. Peristaltic rush

22 iv) Periodic breathing is seen in all the following conditions **EXCEPT**
- A. Cheyne stokes breathing
- B. Biots breathing
- C. Voluntary hyperventilation
- D. Histotoxic hypoxia

22 v) Individuals who express a terminal galactose on the H antigen are type
- A. A
- B. B
- C. AB
- D. O

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