



RAN-2006000101020001

First Year M.B.B.S. Examination April - 2023

Physiology: Paper -I

Time: 3 Hours |

[Total Marks: 100

સૂચના : / Instructions

(9)

નીચે દર્શાવેલ નિશાનીવાળી વિગતો ઉત્તરવર્તી પર અવશ્ય લખવી.

Fill up strictly the details of  signs on your answer book

Name of the Examination:

First Year M.B.B.S.

Name of the Subject :

☛ **Physiology: Paper -I**

Subject Code No.: 2006000101020001

Seat No.: _____

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Student's Signature _____

- (2) SECTION A (MCQ) is given in separate sheet.
- (3) Draw diagrams and flow chart wherever required.

Section A (MCOs)

20 Marks

Select the most appropriate choice in each of the following MCQ

- Which of the following acts as a cell adhesion molecule
a) Connexin b) Kinesin
c) Actin d) Cadherin
- All of the following transport process follow 'saturation kinetics' except
a) Simple diffusion b) Facilitated diffusion
c) Na⁺-Ca⁺ exchanger d) Na⁺ coupled active transport
- Enzymes catalases are present in
a) Lysosomes b) Peroxisomes
c) Ribosomes d) Mitochondria
- The Equilibrium potential for Na⁺ is
a) +60mV b) +90mV ,
c) +70mV d) +100mV

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[P.T.O.]

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5. In the body muscle contractions are subtetanic type but not jerky because of
- Recruitment of motor units
 - Frequency of nerve impulse
 - Synchronization of nerve impulse
 - Asynchronous discharge of motor units
6. Eosinophilia occurs in
- Stressful condition.
 - Urticaria
 - Pyogenic infection.
 - Corticosteroid therapy.
7. The function of suppressor T (Ts) cells is
- Secreting interleukin-2
 - Suppressing the activity of B lymphocytes.
 - Preventing the activity of cytotoxic T cells
 - Induction of Apoptosis
8. A 2-year-old boy bruises easily and has a history of nosebleeds. He has also had bleeding into his knee joints after minimal trauma. You would suspect that this patient has a deficiency of which coagulation factor?
- Prothrombin activator
 - Factor II
 - Factor VIII
 - Factor X
9. The property of aggregation of platelets is because of
- von Willebrand factor
 - Thrombosthenin
 - Thromboxane A2
 - Serotonin
10. Atrioventricular dissociation occurs in
- First degree AV nodal block
 - Second degree AV nodal block
 - Third degree AV nodal block
 - Mobitz type II block
11. Which is the most potent coronary vasodilator
- Adenosine
 - Lactate
 - Prostaglandins
 - Dopamine
12. Heart rate is calculated by dividing 1500 by distance between which of the following two consecutive waves?
- P-P
 - R-R
 - P-R
 - T-T
13. Carbon monoxide poisoning is a type of
- Anemic hypoxia
 - Histotoxic hypoxia
 - Hypoxic hypoxia
 - Stagnant hypoxia

[Time:3 Hours]**[Total Marks: 100]****Instruction:**

- (1) Section A (MCQ) is given in separate sheet.
- (2) Draw diagrams and flow chart wherever required.

Section - "B"**(40 Marks)**

Q.1 A 43-year-old man presents to the physician's clinic with complaints of epigastric pain. After a thorough workup, the patient is diagnosed with peptic ulcer disease. He is started on a medication that inhibits the "proton pump" of the stomach. **(10 marks)**

- a. What is the "proton pump" that is referred to above? **(1 mark)**
- b. What type of cell membrane transport would this medication be blocking? **(1 mark)**
- c. Describe the types of transport where molecules use ATP as energy to move against concentration gradient across a cell membrane? **(4 marks)**
- d. Describe Peptic ulcer disease. **(4 marks)**

Q.2 Answer in Short (Any 5 out of 6) (5x3=15 marks)

1. Apoptosis
2. Draw a labelled diagram of Sarcomere
3. Functions of Monocytes
4. Conducting system of heart
5. Excitation contraction coupling in smooth muscle
6. Importance of cross matching in blood transfusion

Q.3 Short notes (Any 3 out of 4) (3x5=15 marks)

1. Ventricular events in Cardiac cycle
2. Immunoglobulins
3. Sites and Stages of erythropoiesis **(2+3marks)**
4. Functions of Liver

Section - "C"**(40 Marks)**

- Q.4** Define Cardiac output. Explain any one method by which Cardiac Output is determined. Explain the factors that regulate Cardiac output. (1+3+6=10marks) **(10 marks)**
- Q.5 Answer in Short (Any 5 out of 6)** **(5x3=15 marks)**
1. Acclimatization at high altitude
 2. Definition and classification of Diuretics **(1+4 marks)**
 3. Pancreatic Enzymes
 4. Morphological classification of Anaemia
 5. Role of ADH in homeostasis
 6. Respiratory membrane
- Q.6 Short notes (Any 3 out of 4)** **(3x5=15 marks)**
1. Neural Regulation of Respiration.
 2. Lung Surfactant and its function and applied aspect **(1+2+2 marks)**
 3. What is Tubular maximum for glucose (TmG) and what is Splay? Explain with diagram. **(2.5 +2.5marks)**
 4. Functions of Juxtaglomerular apparatus