

**FIRST PROFESSIONAL M.B.B.S. DEGREE EXAMINATION  
MARCH/APRIL 2005**

**PHYSIOLOGY including BIOPHYSICS—Paper I**

(New Scheme)

Time : Three Hours

Maximum : 50 Marks

*Answer Sections A and B separately.*

*Draw diagrams wherever necessary.*

**Section A**

- I. Multiple Choice Questions (separate sheet attached) (10 × ½ = 5 marks)
- II. (a) Draw and label pathic flow of blood through the coronary vessels.  
(b) Compare a cortical and juxtamedullary nephron. (2 × 3 = 6 marks)
- III. (a) Explain the reabsorption of glucose from renal tubules.  
(b) Name the invitro antocoagulants. Briefly explain the action of any one of them. (2 × 2 = 4 marks)
- IV. (a) Discuss the chemical control of respiration.  
(b) Name the enzymes present in pancreatic juice. How is pancreatic secretion regulated ?  
(c) How food is prevented from entering the respiratory passages while swallowing ?  
(d) What is PR interval ? What is its significance ?  
(e) How is body temperature regulated on exposure to cold environment ? (5 × 2 = 10 marks)

**Section B**

- V. A 30 year old executive was brought to casuality following an accident. O/E HC had rapid thready pulse, respiratory rate 30/mt. systolic BP 90 mm. of Hg. and cold pale skin.
  - 1 What is this condition ?
  - 2 What are the compensatory reactions occuring in this condition ?
  - 3 What is the immediate management of this condition ?(2 + 5 + 3 = 10 marks)
- VI. Give the reasons for the following :—
  - 1 Dumping syndrome is seen after gastrectomy.
  - 2 Alveoli are always kept dry.
  - 3 Retoculocyte count is increased after Vitamin B<sub>12</sub> therapy.
  - 4 ODC (Oxygen Dissociation Curve) in infants is shifted to left.
  - 5 Increased intracranial tension results in bradycardia and elevation of Blood Pressure.(5 × 3 = 15 marks)

PHYSIOLOGY including BIOPHYSICS—Paper I

I. MULTIPLE CHOICE QUESTIONS

Note.—(1) Do not write anything on the question paper.

(2) Write your register number on the answer-sheet provided.

(3) Select the appropriate answer and encircle the alphabet against each question in the answer-sheet provided.

1. The hormonal stimulus which is more important in pancreatic enzyme secretion is :  
(A) Secretion. (B) Histamine.  
(C) CCK-PZ. (D) Motiline.
2. Nitrogen wash out method measures :  
(A) Residual volume. (B) Inspiratory capacity.  
(C) Functional residual capacity. (D) Dead space.
3. Plateau phase of action potential of cardiac muscle is due to :  
(A) Opening of sodium channels. (B) Opening of potassium channels.  
(C) Opening of slow Ca channels. (D) Closing of sodium channels.
4. Renal failure is characterised by the following except :—  
(A) High blood urea. (B) High blood pH.  
(C) Hyper kalemia. (D) Decreased creatonine.
5. Plasma cells are :  
(A) Activated T cells. (B) Activated B cells.  
(C) Activated neutrophils. (D) Activated tissue macrophages.
6. Spherocytosis can be caused due to abnormality of :  
(A) Spectrin. (B) Ankyrin.  
(C) Band 3. (D) All of the above.
7. Partial pressure of Nitrogen is greatest in :  
(A) Expired air. (B) Tissues.  
(C) Inspired air. (D) Alveoli.
8. A substance that is completely reabsorbed from kidney is :  
(A) Sodium. (B) Potassium.  
(C) Glucose. (D) Urea.

9. Carbohydrate in small gut is hydrolysed by the following enzymes **except** :

(A) Lactase.

(B) Ptyalin.

(C) Maltase.

(D) Sucrose.

10. The capacitance blood vessel include :

(A) Large arteries.

(B) Arterioles.

(C) Capillaries.

(D) Veins.

(10 × ½ = 5 marks)