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First Year M.B.B.S. (New) Examination November - 2025

Physiology (Paper - I)

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

સૂચના : / Instructions
(1) ઉપરોક્ત દર્શાવેલ વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fill up strictly the above details on your answer book.

Seat No.:

Student's Signature

SECTION – "A" Multiple Choice Questions (MCQ)

Instruction: Select one of the most appropriate choice out of four options in each multiple choice question.

Q.1. MCQ based. (20 marks) **(20)**

1. P wave in ECG showing:
   a) Atrial depolarization b) Atrial repolarisation
   c) Ventricular depolarization d) Ventricular repolarization
2. All of following are enzymes of pancreatic juice except:
   a) Cholesterol esterase b) Chymotrypsinogen
   c) Procarboxypeptidase d) pepsinogen
3. Clot retraction process at the end of clot formation is done by
   a) Thrombin b) Fibrinogen
   c) Platelets d) Fibrin stabilizing factor
4. Oxygenation of haemoglobin lowers its affinity for carbon dioxide is called
   a) Hering Breuer reflex b) Haldane effect
   c) Bohr Effect d) Bain bridge reflex
5. Excitatory motor neurons in the myentric plexus release
   a) Ach b) VIP
   c) NO d) Nor epinephrine
6. Spirometry demonstrates & measures all of the following except:
   a) Tidal volume b) Residual volume
   c) Inspiratory capacity d) Vital capacity
7. All of the following are properties of skeletal muscle except:
   a) All or none law b) Fatigue
   c) Tetanus d) Summation of two successive stimuli
8. Coronary blood flow increase by...
   a) Isovolumetric contraction phase b) Hypocapnia
   c) Increase blood pH d) Adenosine monophosphate

9. All of the following are maturation factors of erythropoesis except:
   a) Erythropoietin b) Vitamin B_{12}
   c) Folic acid d) Castle's intrinsic factor
10. Isovolumetric relaxation phase of cardiac cycle ends with
   a) Opening of A-V valve b) Closure of A-V valve
   c) Opening of semilunar valve d) Closure of semilunar valve
11. "Inflation of lung inhibit further inflation" is explained by:
   a) Hering-Breuer inflation reflex b) Hering-Breuer deflation reflex
   c) Head's paradoxical reflex d) 'J' reflex
12. Which of the following cell organelle contains digestive enzymes?
   a) Endoplasmic reticulum b) Golgi complex
   c) Mitochondrion d) Lysosome
13. The major humoral mediator of gall bladder contraction in response to a fat meal is:
   a) CCK b) Gastrin
   c) Secretin d) Somatostatin
14. CO2 is primarily transported in the arterial blood as:
   a) Dissolved CO2 b) Carbonic acid
   c) Carbamino haemoglobin d) Bicarbonate
15. Vitamin K dependent factors are all of the following except:
   a) Factor II b) Factor V
   c) Factor VII d) Factor X
16. Arneth count is:
   a) Counting of reticulocytes b) Counting of erythrocytes
   c) Counting of lobes of neutrophils d) Counting of megakaryocytes
17. Plateau in cardiac muscle action potential is due to:
   a) K^+ influx b) Na^+ efflux
   c) Cl^- efflux d) Ca^{+2} influx
18. Normal value of FEV1/FVC ratio in adult male:
   a) 50% b) 60%
   c) 70% d) 80%
19. Resistance vessels are
   a) Small arteries and arterioles b) Veins and venules
   c) Capillaries d) Large arteries
20. Volume of air left in the lungs at the end of normal expiration is:
   a) Inspiratory capacity b) Expiratory capacity
   c) Functional residual capacity d) Residual volume

SECTION - B (40 marks)

Q.2. Cardiac output (CO): Definition, Normal value & Determinants of CO. **2+1+4+3=10**
Write any one method of measurement of CO.

Q.3. **Short note. (any 5 out of 6) (3 marks each)** **(15)**

a. Repeated stimulus causes fatigue in skeletal muscle.
b. A-V nodal delay ensures sufficient ventricular filling.
c. Denervation of urinary bladder causes Automatic bladder.
d. Timed vital capacity can differentiate between obstructive & restrictive lung diseases.
e. Rh incompatibility can cause erythroblastosis foetalis.
f. Trypsin inhibitor prevent autodigestion of pancreas.

Q.4. **Short Notes. (any 3 out of 4) (5 marks each)** **(15)**

a. Intrinsic pathway of coagulation.
b. Functions of Bile.
c. Glomerular filtration rate.
d. Cell mediated immunity.

SECTION - C (40 marks)

Q.5. **Short notes. (any 4 out of 5) (5 marks each)** **(20)**

a. Active transport.
b. Resting membrane potential.
c. Neuromuscular junction.
d. Surfactant.
e. Oxygen-Haemoglobin dissociation curve.

Q.6. **Short notes (any 4 out of 5) (5 marks each)** **(20)**

a. How empathy can be shown to the patient?
b. Cardiovascular adaptation during exercise.
c. Artificial kidney.
d. Hypoxic hypoxia.
e. Iron deficiency anaemia.

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