



DAE-M-20173-N Seat No. _____
First Year M. B. B. S. Examination
April - 2022
Physiology : Paper - 1

Time : 3 Hours]

[Total Marks : 100

- Instructions :** (1) Write answers to each section in separate answer book.
(2) Draw diagrams, wherever necessary.

SECTION - I

- 1 Classify the leukocytes. Describe the morphological features of leucocytes with the help of diagrams. Write in brief about the steps involved in phagocytic function of neutrophils. **12**

OR

Enumerate various blood groups. Describe Rh. system. Write in brief about the hazards of mismatched blood transfusion.

- 2 Short notes. Write any three out of four : **12**
(a) Carbon dioxide transport.
(b) Lung compliance
(c) Defecation
(d) Digestion and absorption of protein.
- 3 (a) Write in brief about the responsibilities and duties of a physician **6**
(b) Explain in few sentences : (five questions - All are compulsory) **10**
(i) Hypoproteinemia leads to oedema.
(ii) Micelles are necessary for absorption of vitamin A.
(iii) Lymphocytes are the basis of acquired immunity.
(iv) In summer urine is highly concentrated.
(v) Clearance value of inulin is used for measurement of Glomerular filtration rate
- 4 MCQ -- Select one correct answer. All are compulsory : **10**
(1) The site of vitamin B₁₂ absorption in intestine is :
(A) Duodenum (B) Jejunum
(C) Ileum (D) Caecum

- (2) Supplemental oxygen therapy is most beneficial in :
 (A) Anaemic hypoxia (B) Hypoxic hypoxia
 (C) Stagnant hypoxia (D) Histotoxic hypoxia
- (3) Glucose is transported to cell by :
 (A) Potassium (K⁺) Symport
 (B) Sodium (Na⁺) Symport
 (C) Sodium (Na⁺) anteport
 (D) Potassium (K⁺) anteport
- (4) Pacemaker potential is :
 (A) Largely due to Increased membrane permeability to potassium ion
 (B) Characteristics of atrial and ventricular muscle
 (C) Characterised by unstable Resting membrane potential
 (D) Also called spike potential
- (5) Iron deficiency anaemia is :
 (A) Macrocytic hypochromic
 (B) Normocytic normochromic
 (C) Normocytic hypochromic
 (D) Microcytic hypochromic
- (6) What is Haldane effect :
 (A) Loading of CO₂ to blood causes unloading of O₂
 (B) Loading of O₂ to blood causes unloading of CO₂
 (C) Binding of CO to haemoglobin displaces O₂
 (D) Decrease in O₂ affinity of haemoglobin when pH of blood falls
- (7) Functional residual capacity helps to assess :
 (A) Ventilatory functions of lung
 (B) Transport of gases in the body
 (C) Gaseous exchange across the lungs
 (D) Physical fitness of a person
- (8) Which of the following is not toxic effect of high oxygen tension :
 (A) Pulmonary oedema
 (B) CNS excitation and convulsion
 (C) Decreased cerebral blood flow
 (D) Retinal damage
- (9) Small intestinal peristalsis is dependent upon the integrity of :
 (A) Meissner's nerve plexus
 (B) Myenteric nerve plexus
 (C) Sympathetic nervous system
 (D) Parasympathetic nervous system
- (10) Small intestinal motility is increased by :
 (A) Secretin
 (B) Gastrin
 (C) Glucagon
 (D) Gastric inhibitory peptide

SECTION - II

- 5 Define cardiac output. Enumerate the factors affecting cardiac output. Describe in detail about the control of cardiac output. **12**

OR

Describe briefly about the features of coronary blood flow. Add a note on regulation of coronary blood flow.

- 6 Short notes. Write any three out of four : **12**
- (a) Caisson's disease.
 - (b) Counter current mechanism of urine formation.
 - (c) Juxtaglomerular apparatus.
 - (d) Body temperature regulation.
- 7 (a) Write about micturition reflex. Write in brief about the effects of afferent nerve injury on bladder functions. **6**
- (b) Explain in few sentences : (Five questions - All are compulsory) **10**
- (i) Simultaneous contraction of atria and ventricles do not take place.
 - (ii) Internal environment of body.
 - (iii) Cardiac muscle can not be tetanized.
 - (iv) Bile salts are necessary for digestion of fat.
 - (v) Capillaries are known as exchange vessels.
- 8 MCQ - All are compulsory Select one correct answer : **10**
- (1) The first reactive change to occur after haemorrhage is :
- (A) Tachycardia
 - (B) Vasoconstriction
 - (C) Raised cortisol levels
 - (D) Raised catecholamine levels
- (2) Gibbs-Donnan effect is seen on the distribution of :
- (A) Non- diffusible ions
 - (B) Diffusible ions
 - (C) Only protein ions
 - (D) Osmotically active particles
- (3) Which of the following moves rapidly across the cell membrane:
- (A) Water
 - (B) Glucose
 - (C) CO₂
 - (D) Urea

- (4) What happens to plasma bicarbonate in metabolic acidosis :
- (A) Increased (B) Decreased
(C) Unchanged (D) Variable
- (5) Creatinine is not ideal to measure GFR in humans because :
- (A) It is toxic
(B) Some of it is reabsorbed by tubules and some may be secreted
(C) Slowly adopting
(D) Affects filtration rate
- (6) Stimulation to parasympathetic nerve to gastrointestinal tract produces :
- (A) Increase in motility and tone
(B) Inhibition of secretion from stomach
(C) Contraction of sphincters
(D) Inhibition of intestinal secretion
- (7) Pepsin optimal activity is seen at pH :
- (A) Below 4 (B) Below 4.5
(C) Below 5 (D) Below 6
- (8) Choloretics are substances which cause :
- (A) Contraction of gall bladder
(B) Increases biliary secretion from the liver
(C) Neutralization of acid from the stomach
(D) Solubility of fats in micelles
- (9) Heart rate is maximum in a normal :
- (A) Foetus (B) Newborn
(C) Adult (D) Old age
- (10) Subendocardial portion of left ventricle is most common site of myocardial infarction because :
- (A) Left coronary artery supplying the left ventricle has greater flow
(B) Left ventricle does more work to propel the blood compared to right ventricle
(C) Left ventricle has more muscle mass compared to right ventricle
(D) There is no blood flow during systole in the subendocardial portion of left ventricle