

**PHYSIOLOGY
PAPER- FIRST**

Note: Attempt all questions.
Draw suitable diagrams (wherever necessary)

- Q. 2. Give reasons why:** (1 x 5 = 05)
- Calcium deficiency does not produce coagulation defects
 - Pulmonary edema occurs during rapid ascent
 - Sudden standing from lying posture can lead to fainting in an individual
 - During nervousness frequency of micturition is increased
 - Anaemia is associated with liver disorders
- Q. 3. Problem based question:** (1 x 5 = 05)
- A 12 year old boy has a severe asthmatic attack with wheezing. He experiences rapid breathing and becomes cyanotic. His arterial pO_2 is 60 mmHg and his pCO_2 is 30 mmHg.
- Define $FEV_1\%$
 - What is the status of $FEV_1\%$ in this patient?
 - Define V/P ratio.
 - What is the status of V/P ratio this patient?
 - Why level of pCO_2 are lower than normal
- Q. 4. Write short notes on:** (2.5 x 4 = 10)
- 'Splay' in TmG
 - Role of dietary fiber in food
 - Heart sounds
 - Loop diuretics
- Q. 5. Structured questions:**
- (i). Enumerate various tests done to assess the functional capacity of the kidney. Describe tests, to detect an early impairment of renal function. (1+4 = 05)
- (ii). Define blood pressure and mean blood pressure. Give an account of schematic representation of long term arterial BP regulatory mechanisms. (1+4 = 05)
- Q. 6. Write in brief about:** (2.5 x 4 = 10)
- Role of natural killer cells in immunity
 - Fate of bilirubin
 - Deglutition
 - Properties of action potential

PHYSIOLOGY
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SET - C

[Max Marks: 50]

[Time allotted: Three hours]

Q. 1. Multiple choice questions (attempt all MCQs in the allotted first 20 minutes in the OMR sheet) ($\frac{1}{2} \times 20 = 10$)

1. The normal ventilation/perfusion distribution is as follows:
 - a. Ventilation more at the base of the lungs
 - b. Perfusion more at the apex of the lungs
 - c. Ventilation more at the apex and perfusion more at the base of the lungs
 - d. Both ventilation and perfusion are uniform throughout the lung fields
2. The normal alveolar ventilation/perfusion ratio is:
 - a. 0.6
 - b. 0.4
 - c. 0.2
 - d. 0.8
3. Glucose is absorbed by:
 - a. Passive diffusion
 - b. Osmosis
 - c. Carrier-mediated transport
 - d. Pinocytosis
4. In skeletal muscles, all or none principle applies to:
 - a. Single muscle fibre
 - b. Motor unit
 - c. Fasciculus
 - d. Muscle as a whole
5. Extracellular fluid contains:
 - a. Large quantities of Na^+ , Cl^-
 - b. Large quantities of HCO_3^-
 - c. Small quantities of K^+ , Ca^{2+} , Mg^{2+} , PO_4^{3-} , SO_4^{2-}
 - d. All are correct
6. Substance which causes platelets activation is:
 - a. Fibrinogen
 - b. Damaged collagen
 - c. Prothrombin
 - d. Prothrombin activation
7. The renal blood flow can be estimated by:
 - a. Plasma clearance of para aminohippuric acid
 - b. Diodrast clearance
 - c. Both a and b are correct
 - d. Inulin clearance
8. Chronotropism refers to:
 - a. Rhythmicity
 - b. Conductivity
 - c. Excitability
 - d. Contractility
9. Decompression sickness or Caisson's disease is due to bubbling of:
 - a. Oxygen in the tissues
 - b. CO_2 in the tissue
 - c. Hydrogen in the tissues
 - d. Nitrogen in the tissues
10. Chemical regulation of respiration is maximally affected by:
 - a. O_2
 - b. CO_2
 - c. Bicarbonate
 - d. Lactic acid
11. The tendency for blood flow to be turbulent increases when there is a decrease in blood:
 - a. Vessel diameter
 - b. Density
 - c. Flow velocity
 - d. Viscosity
12. Platelets play an important role in the:
 - a. Haemolysis
 - b. Haemopoiesis
 - c. Haemostasis
 - d. Homeostasis
13. Which of the following substances increases as the salivary secretion increases?
 - a. Sodium
 - b. Potassium
 - c. Calcium
 - d. Bicarbonate
14. Achalasia is failure of:
 - a. Stomach to relax
 - b. Upper oesophagus to relax
 - c. Cardia to relax
 - d. Pyloric sphincter to relax
15. Mechanisms which regulate the blood pressure include all the following except:
 - a. Baroreceptor reflex
 - b. Renin-angiotensin mechanism
 - c. Maintenance of circulating blood volume
 - d. Release of substance P from peripheral nerve endings
16. The juxta glomerular apparatus is formed by:
 - a. Juxta glomerular cells, macula densa and lacis cells
 - b. Macula densa, mesangial cells and lacis cells
 - c. Juxta medullary cells, podocytes and macula densa
 - d. Only macula densa and lacis
17. Compensatory mechanism due to acclimatization at high altitude involves:
 - a. Increased alveolar ventilation
 - b. Increased production of red blood cells
 - c. Production of alkaline urine
 - d. All of the above
18. Which of these are phagocytic?
 - a. Macrophages
 - b. Fibroblasts
 - c. Osteoblasts
 - d. None of the above
19. The anticoagulants which act both in vivo and vitro are:
 - a. Heparin
 - b. Oxalate
 - c. Citrate
 - d. All of the above
20. The hormone which regulates water balance through electrolytes is:
 - a. Aldosterone
 - b. Vasopressin
 - c. Oxytocin
 - d. Progesterone

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Paper Code: MBBS103

Note: Attempt all questions.

Draw suitable diagrams (wherever necessary)

Q. 2. Give reasons:

- In chemical synapses the conduction of impulses is one-way.
- A soldier wounded in war does not feel severe pain till battle is complete.
- Subject is made to sit at 6 metres from a Snellens chart.
- Weight gain in hypothyroidism.
- Diabetics are more prone to infection.

(1 x 5 = 05)

Q. 3. Problem based question:

A 56 years old man noticed that his movements have slowed down during last 2 years and that his hands shook whenever he is sitting. Passive bending of elbow showed resistance to movement initially but it gave way and then resumed repeatedly as bending progressed. Based on above history answer the following questions

(1 x 5 = 05)

- What is your diagnosis?
- What is the defect in structure of CNS which can lead to above condition?
- Draw a flow chart to show the defect.
- Name the rigidity.
- What treatment will you prescribe to patient?

Q. 4. Write short notes on:

- Functions of rods and cones
- Mechanism of action and functions of insulin
- Accommodation reflex
- Sertolli cells

(2.5 x 4 = 10)

Q. 5. (i) What are different type of memories? Explain briefly the mechanism of formation of long term memory.

(05)

(ii) Explain how cortisol produce immunosuppression and anti-inflammation?

(05)

Q. 6. Write in brief about:

- Sarcomere
- Physiological basis of phantom limb
- Acrosomal reaction
- Diagram of neuro-muscular junction

(2.5 x 4 = 10)

Regn. No.

M.B.B.S. FIRST PROFESSIONAL EXAMINATION, AUGUST-2019

PHYSIOLOGY
PAPER - SECOND

[Max Marks: 50]

[Time allotted: Three hours]

SET - A

(½ x 20 = 10)

Q. 1. Multiple choice questions (attempt all MCQs in the allotted first 20 minutes in the OMR sheet)

1. All are the properties of synapse **except**:
 - a. All or none law
 - b. Law of forward conduction
 - c. Fatigue
 - d. More susceptible to hypoxia than nerve fibres
2. Source of generator potential in pacinian corpuscle:
 - a. Unmyelinated sensory nerve ending
 - b. Receptor capsule
 - c. First node of Ranvier
 - d. Second node of Ranvier
3. Spinothalamic tract transmits all the following sensations **except**:
 - a. Pain
 - b. Temperature
 - c. Touch
 - d. Proprioception
4. Fast pain is carried by _____ fibres.
 - a. A δ fibres
 - b. C fibres
 - c. B fibres
 - d. A α fibres
5. Webers Fechner Law deals with:
 - a. Frequency discrimination
 - b. Receptive field organisation
 - c. Intensity discrimination
 - d. Two point discrimination
6. The centre point of the lens is known as:
 - a. Nodal point
 - b. Principal axis
 - c. Principal focus
 - d. Visual point
7. Refractive power of the lens of reduced eye is:
 - a. 60 D
 - b. 59 D
 - c. 61 D
 - d. 58 D
8. Aldosterone escape occurs through:
 - a. Primary active transport
 - b. Facilitated diffusion
 - c. Pressure diuresis
 - d. Pinocytosis
9. The glucose transporter responsible for transport of fructose in the sperm is:
 - a. GLUT 1
 - b. GLUT 2
 - c. GLUT 5
 - d. GLUT 6
10. Receptors for growth hormone is located in:
 - a. Nucleus
 - b. Cytoplasm
 - c. Cell membrane
 - d. Ribosomes
11. Somatomedins are chiefly secreted in:
 - a. Liver
 - b. Bone marrow
 - c. Kidney
 - d. Brain
12. Endolymph is present in:
 - a. Scala vestibule
 - b. Scala media
 - c. Helicotrema
 - d. Scala tympani
13. The taste sensation produced by monosodium glutamate is:
 - a. Sweet
 - b. Salt
 - c. Bitter
 - d. Umami
14. Lesion of optic chiasma leads to:
 - a. Blindness in the same eye
 - b. Blindness in opposite eye
 - c. Bitemporal hemianopia
 - d. Homonymous hemianopia
15. Which of the following are **not** the cells of cerebellum?
 - a. Purkinje cell
 - b. Granular cell
 - c. Basket cell
 - d. Giant cell of Betz
16. The part of thalamus which relays the anterolateral spinothalamic tract:
 - a. Lateral geniculate body
 - b. Medial geniculate body
 - c. Ventral posterolateral nucleus
 - d. Anterior nucleus
17. Loss of memory is termed:
 - a. Amnesia
 - b. Anosmia
 - c. Ageusia
 - d. Aphasia
18. Following are endogenous opioids **except**:
 - a. Pethedine
 - b. Enkephalin
 - c. Endorphin
 - d. Dynorphin
19. Utricles help in detection of _____ movements.
 - a. Rotation
 - b. Side to side
 - c. Anteroposterior
 - d. Oblique
20. Inborn reflex is called _____ reflex.
 - a. Conditioned
 - b. Unconditioned
 - c. Superficial
 - d. Polysynaptic