Unit 8.1. MCQs Set 1

Results



#1. Q1. Physiology broadly studies

 $\hfill\Box$ (A). Only anatomical structures

(B). Functions and mechanisms in living systems at multiple levels (cells, tissues, organs)

(C). Strictly mental illusions

(D). None

Physiology explains how organisms, organ systems, cells, and biomolecules carry out various chemical or physical functions.

#2. Q2. Fundamental cellular function includes

(A). Protein synthesis, ATP production, membrane transport, cell signaling
(B). None
(C). RBC doping
(D). Strict illusions

Cells perform vital functions such as protein synthesis, energy production, membrane transport, and signaling.

#3. Q3. A typical cell membrane composition is

(A). None
(B). Phospholipid bilayer with embedded proteins, cholesterol, possibly carbohydrates
(C). RBC doping
(D). Pure cellulose

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The fluid mosaic model describes a membrane composed of a phospholipid bilayer with proteins, cholesterol, and carbohydrates on the exterior.

#4. Q4. Resting membrane potential in many neurons is around
□ (A). +60 mV
□ (B)70 mV
(C). 0 mV
(C). O IIIV (D). None
Due to ion gradients (mainly Na ⁺ and K ⁺), the interior of neurons is about -70 mV relative to the outside.
#5. Q5. The sodium-potassium pump (Na+/K+-ATPase)
□ (A). None
☐ (B). Moves 3 Na+ out, 2 K+ in, using ATP to maintain gradients crucial for excitability
□ (C). RBC doping
□ (D). Infect illusions
The Na ⁺ /K ⁺ -ATPase actively transports ions (3 Na ⁺ out, 2 K ⁺ in) using ATP, essential for cell excitability and homeostasis.
#6. Q6. The digestive system's main function is
(A). None
(B). Ingestion, digestion, absorption of nutrients, excretion of wastes
(C). RBC doping
(D). Pure illusions
The digestive system processes food by ingesting, digesting, absorbing nutrients, and excreting waste.
#7. Q7. Chemical digestion of carbohydrates initiates primarily in the
(A). Stomach by pepsin
(B). Mouth by salivary amylase
(C). None
(D). Large intestine
Salivary amylase in the mouth starts the breakdown of starches into simpler sugars.
#8. Q8. Absorption of most nutrients occurs mainly in
□ (A). None
(B). The small intestine (duodenum, jejunum)

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(C). Stomach	
(D). Rectum	
The small intestine, with its villi and microvilli, provides a large surface area for nutrient absorption.	
#9. Q9. Metabolism includes	
(A). None (B). All chemical reactions in the body, including catabolic and anabolic pathways (C). RBC doping	
(D). Infect illusions	
Metabolism encompasses both the breakdown of molecules (catabolism) and the synthesis of compounds (anabolism	n).
#10. Q10. The liver's role in carbohydrate metabolism involves	
(A). None (B). Glycogenesis, glycogenolysis, gluconeogenesis, and regulation of blood glucose (C). RBC doping (D). Infect illusions	
The liver regulates blood glucose by storing (glycogenesis), breaking down (glycogenolysis), and synthe (gluconeogenesis) glucose.	sizing
#11. Q11. Respiratory system includes	
(A). None (B). Nasal cavity, pharynx, larynx, trachea, bronchi, and lungs (C). RBC doping (D). Infect illusions	
The respiratory system is composed of structures that facilitate air movement and gas exchange from the nose alveoli.	to the
#12. Q12. Breathing (ventilation) means	
(A). None (B). Movement of air in and out of the lungs driven by diaphragm and rib cage (C). RBC doping (D). Infect illusions Ventilation refers to the process of air moving in and out of the lungs via diaphragmatic contraction and rib	n cage
expansion.	, cage

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#13. Q13. Gas exchange occurs primarily in
(A). None
(B). The alveoli where oxygen diffuses into the blood and carbon dioxide diffuses out
(C). RBC doping
(D). Infect illusions
Alveoli are the primary sites of gas exchange in the lungs due to their thin membranes and high surface area.
#14. Q14. Circulatory system "double circulation" means
(A). None
(B). Blood passes through the heart twice per complete circuit (pulmonary and systemic circulations)
(C). RBC doping
(D). Infect illusions
Double circulation in humans refers to separate pulmonary and systemic circuits.
#15. Q15. Human blood typically is
(A). None
(B). Approximately 55% plasma and 45% cellular components (RBCs, WBCs, platelets)
(C). RBC doping
(D). Infect illusions
Human blood is composed of roughly 55% plasma and 45% cells.
#16. Q16. Hemoglobin binds oxygen most effectively in
(A). None
□ (B). Environments with high partial pressure of oxygen and a slightly higher pH, as found in the alveoli
□ (C). RBC doping
□ (D). Infect illusions
Hemoglobin's affinity for oxygen is enhanced in conditions typically found in the alveoli, where oxygen levels and pH favor binding.
#17. Q17. The central nervous system (CNS) comprises
(A). None
(B). The brain and spinal cord
□ (C). RBC doping □

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(D). Infect illusions

The CNS consists of the brain and spinal cord, which coordinate and control bodily functions.

#18. Q18. The autonomic nervous system (ANS) includes

 \Box (A). None \Box (B). The sympathetic and parasympathetic divisions that regulate involuntary bodily functions \Box (C). RBC doping

(D). Infect illusions

The ANS comprises the sympathetic and parasympathetic systems which regulate functions such as heart rate, digestion, and respiratory rate.

#19. Q19. Neurophysiology might investigate

□
(A). None
□
(B). The electrical properties of neurons, synaptic transmission, and reflex pathways
□
(C). RBC doping
□
(D). Infect illusions

Neurophysiology studies the electrical signaling, synaptic communication, and reflex mechanisms in neurons.

#20. Q20. Cerebrospinal fluid (CSF) is found in

□
(A). None
□
(B). The brain's ventricles and the subarachnoid space surrounding the CNS
□
(C). RBC doping
□
(D). Infect illusions

CSF circulates in the ventricles and subarachnoid space, cushioning and nourishing the CNS.

#21. Q21. Excretory system primarily includes

□
(A). None
□
(B). The kidneys, ureters, urinary bladder, and urethra, which eliminate waste products from the body
□
(C). RBC doping
□
(D). Infect illusions

The excretory system consists of organs that filter blood and produce urine, removing waste from the body.

#22. Q22. Acid-base regulation in the body often depends on

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(A). None
\square (B). The bicarbonate buffer system, respiratory CO $_2$ exhalation, and renal H $^+$ excretion
(C). RBC doping
□ (D). Infect illusions
The bicarbonate buffer system, along with respiratory and renal adjustments, maintains blood pH around 7.4.
#23. Q23. Endocrine glands release
(A). None
(B). Hormones directly into the bloodstream to act on distant target tissues
(C). RBC doping
(D). Infect illusions
Endocrine glands secrete hormones into the blood, which then travel to regulate functions in various parts of the body.
#24. Q24. Hormonal functions can be
(A). None
□ (B). Responsible for regulating metabolism, growth, reproduction, and stress responses □
(C). RBC doping
(D). Infect illusions
Hormones play critical roles in controlling metabolism, growth, reproduction, and the body's reaction to stress.
#25. Q25. The pituitary gland is often called
(A). None
□ (B). The master gland, as it releases tropic hormones that control other endocrine glands
(C). RBC doping
□ (D). Infect illusions
The pituitary gland directs the activity of other endocrine glands by secreting various tropic hormones.
#26. Q26. The reproductive system in humans includes
□ (A). None
□ (B). The gonads (testes/ovaries), accessory ducts, external genitalia, and associated hormonal regulation
□ (C). RBC doping
□ (D). Infect illusions
The human reproductive system comprises the gonads, duct systems, and external structures, all regulated by hormon

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(D). Infect illusions

Cellular functions encompass maintaining ion gradients, signal transduction, and homeostasis.

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#32. Q32. The digestive system's main proteolytic enzyme in the stomach is (A). None (B). Pepsin, which hydrolyzes proteins in an acidic environment (C). RBC doping (D). Infect illusions Pepsin is the primary enzyme in the stomach responsible for breaking down proteins. #33. Q33. Fat digestion primarily occurs in the (A). None (B). Small intestine (duodenum) aided by bile and pancreatic lipase (C). RBC doping (D). Infect illusions Bile emulsifies fats and pancreatic lipase breaks them down in the small intestine. #34. Q34. The "respiratory quotient (RQ)" is (A). None (B). The ratio of CO2 produced to O2 consumed, indicative of the substrate being metabolized (C). RBC doping (D). Infect illusions RQ values help determine the predominant nutrient (carbohydrate, fat, or protein) being metabolized. #35. Q35. In the circulatory system, systolic pressure is (A). None (B). The maximum arterial pressure during ventricular contraction (C). RBC doping (D). Infect illusions Systolic pressure is the highest pressure in the arteries during the heartbeat's contraction phase. #36. Q36. The "Pacemaker" of the heart is

(A). None

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□ (B). The sinoatrial (SA) node located in the right atrium
(C). RBC doping
(D). Infect illusions
The SA node is the heart's natural pacemaker, generating electrical impulses to initiate each heartbeat.
#37. Q37. The main function of white blood cells (WBCs) is
(A). None
(B). Defense against infection, phagocytosis, and immune regulation
(C). RBC doping
(D). Infect illusions
WBCs are the cells responsible for immune defense and host protection.
#38. Q38. The central nervous system (CNS) is protected by
(A). None
(B). Meninges (dura, arachnoid, pia), cerebrospinal fluid (CSF), and the blood-brain barrier (BBB)
(C). RBC doping
(D). Infect illusions
The CNS is shielded by protective layers (meninges and CSF) and the selective blood-brain barrier.
#39. Q39. The autonomic nervous system controlling the "fight or flight" response is the
(A). None
(B). Sympathetic division, which releases norepinephrine to prepare the body for stress
(C). RBC doping
(D). Infect illusions
The sympathetic division of the ANS is activated during stress, increasing heart rate and energy availability.
#40. Q40. The kidneys regulate acid-base balance by
(A). None
(B). Secreting hydrogen ions (H+) and reabsorbing bicarbonate (HCO₃¬) to maintain blood pH
(C). RBC doping
(D). Infect illusions
Renal regulation of acid-base balance involves excreting H ⁺ and conserving HCO ₃ ⁻ , which helps maintain pH levels around 7.4.

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#41. Q41. The renin-angiotensin-aldosterone system (RAAS) modifies
(A). None
(B). Blood pressure, fluid balance, and electrolyte levels via vasoconstriction and sodium retention
□ (C). RBC doping
(D). Infect illusions
RAAS plays a key role in controlling blood pressure and fluid balance by affecting vessel tone and sodium reabsorption
#42. Q42. The pancreas is both exocrine and endocrine. Its endocrine role includes
(A). None
(B). Secretion of insulin and glucagon to regulate blood glucose levels
(C). RBC doping
(D). Infect illusions
The endocrine function of the pancreas involves the release of hormones that control blood sugar levels.
#43. Q43. The thyroid gland hormone that increases metabolic rate is
(A). None
(B). Thyroxine (T4) and triiodothyronine (T3)
(C). RBC doping
(D). Infect illusions
T4 and T3 from the thyroid gland stimulate metabolism and energy production.
#44. Q44. The stress hormone from the adrenal cortex is
The stress normalie from the adrenal cortex is
(A). None
(B). Cortisol
(C). RBC doping
□ (D). Infect illusions
Cortisol is the principal glucocorticoid released in response to stress.
#45. Q45. In male reproductive physiology, testosterone is secreted by
□ (A). None
(A). Notice (B). Leydig cells in the testes
(C). RBC doping
(c). RBC doping (D). Infect illusions

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Leydig cells produce testosterone, which governs male secondary sexual characteristics.

#46 O46 Overlation typically accure around day. in a standard 20 day evelo
#46. Q46. Ovulation typically occurs around day in a standard 28-day cycle
(A). 28
□ (B). 14
(C). 7
(D). 5
Ovulation usually occurs around day 14 in a typical 28-day menstrual cycle.
#47. Q47. The cerebellum in the brain helps coordinate
□ (A). None
(B). Balance, posture, and fine motor control
(C). RBC doping
(b). Infect illusions
The cerebellum plays a crucial role in maintaining balance, coordinating posture, and fine-tuning movements.
#48. Q48. Voluntary movement requires motor signals from
(A) Maria
(A). None
(B). The primary motor cortex in the frontal lobe, transmitted via the corticospinal tract to skeletal muscle
(C). RBC doping
(D). Infect illusions
Voluntary movement is initiated in the primary motor cortex, which sends signals through the corticospinal tract to the muscles.
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#49. Q49. A reflex arc controlling a knee-jerk response is
□ (A). None
(a). None (B). A monosynaptic stretch reflex involving a sensory neuron directly synapsing with a motor neuron in the spinal cord
(C). RBC doping
(c). NBC doping (D). Infect illusions
The knee-jerk reflex is a classic monosynaptic reflex, where the sensory neuron directly activates a motor neuron.
#50. Q50. Smooth muscle control in gut peristalsis is mostly
□ (A). None
□ (B). Involuntary, modulated by the autonomic nervous system including the enteric nervous system
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☐ (C). RBC doping

□ (D). Infect illusions

Gut peristalsis is controlled by involuntary mechanisms coordinated by the autonomic and enteric nervous systems.

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