

1. The following arteries contribute to the vascularisation of the limbs:

- A. The right axillary artery (for the right upper limb)
- B. The brachial, radial and ulnar arteries (for the arm and forearm)
- C. The superficial palmar arch (for the forearm)
- D. The external iliac artery, a branch of the femoral artery (for the lower limb)
- E. The femoral, popliteal, anterior tibial, posterior tibial and the dorsal arch (for the lower limb)

2. Choose the correct statement(s) about the pulse:

- A. It represents a pressure wave in the arteries, due to the contractions of the left ventricle
- B. It is normally measured at the radial artery at wrist level
- C. It can be measured at all the branches of the carotid artery
- D. It has the same rate as the heart rate, an average of 70 – 75 beats/minute
- E. Pulse becomes stronger as the blood gets farther from the heart

3. Choose the true statement(s) referring to blood:

- A. It transports respiratory gases to and from the lungs
- B. It contains figurative elements, embedded in a solid, yellowish substance called plasma
- C. It carries metabolic products from the cells to the kidney
- D. It is more viscous than water and its normal pH ranges between 7.35 – 7.45
- E. Its major components are represented by plasma and figurative elements

4. Choose the correct statement(s) about the heart and the cardiovascular system:

- A. The heart is responsible for the transport of respiratory gases in dissolved form
- B. The cardiovascular system consists of the heart and blood vessels
- C. The cardiovascular system includes a set of tubes which transport blood (blood vessels)
- D. The heart is the organ which acts like a pump in the cardiovascular system
- E. The cardiovascular system actually supplies only certain regions of the body

5. The following statement(s) is/are true about haemoglobin:

- A. It is a plasma protein, synthesized in the liver
- B. Contains 4 polypeptide chains: two called alpha and two called beta
- C. Each of the polysaccharide chains of haemoglobin is attached to a heme group
- D. Each haemoglobin molecule can transport a single oxygen atom
- E. Each haemoglobin molecule can transport four oxygen molecules (O₂)

6. Choose the correct statement(s) referring to the nasal mucosa:

- A. It lines the external part of the nose
- B. It forms the olfactory region in the inferior wall of the nasal cavity
- C. It contains blood vessels which warm cold air
- D. It secretes mucus which humidifies dry air
- E. It has ciliary cells which carry microorganism-contaminated mucus to the nostrils where it is eliminated

7. The filtration process:

- A. Recovers nutrients, salts and water from fluid of the proximal and distal tubules
- B. Is represented by the passage of fluid from blood plasma into the glomerular capsule through submicroscopic apertures
- C. It excretes the molecules from the peritubular capillaries into the nephron tubules
- D. It pushes water and small plasma molecules out of the glomerular capillaries and into Bowman's capsule
- E. It transports urine to the ureters, and from there to the bladder, the urethra and out of the body

8. The following structures are accessories of the urinary system:

- A. The ureter, a tubular organ
- B. The urinary bladder, a distensible sak
- C. The urinary bladder, situated anterior to the pubic symphysis
- D. The urethra, whose external opening is the external urethral orifice
- E. The convoluted seminiferous tubules in males

9. Choose the correct answers from below:

- A. The nasal cavity is associated with the olfactory sense
- B. The part of the mucosa lining the nasal cavities, responsible for the sense of smell, forms the respiratory area
- C. The olfactory region is situated in the upper wall of the nasal cavities
- D. The nose is not adapted to warm up air, only to cool it down
- E. The blood vessels in the nasal mucosa warm up cold air

10. The following statement(s) is/are true about the airways:

- A. The bronchi are the smallest branches of the airways
- B. The smallest branches of the respiratory zone end in areolae
- C. The smallest branches of the respiratory system airways end in alveoli
- D. The smallest branches of the respiratory system conducting zone end in alveoli
- E. The airways include, in descending order, the bronchi, the bronchioles, the trachea and the larynx

11. Choose the correct statements about the foetal membranes:

- A. At the end of foetal development, the vitelline membrane develops, delimiting the amnion
- B. During its development, the embryo is surrounded by several membranes
- C. The chorion is the origin of the chorionic villi
- D. The allantois is a part of the umbilical cord
- E. The allantois is situated in the fallopian tubes, between the embryo and the vitelline sac

12. Which of the following statements referring to the vagina are true?

- A. It is a fibromuscular canal that extends from the cervix to the vaginal opening in the vestibule
- B. It has the property to distend and to extend superiorly and towards the anterior part of the pelvic cavity
- C. The walls of the vagina contain a vast network of blood vessels and layers of striated muscles
- D. The hymen is a thin fold of epithelium which partially or totally blocks the penetration of the vagina before intercourse
- E. The only function of the vagina is to eliminate fluids during the menstrual period

13. About the ovary, it is true that:

- A. It is an unpaired, median, organ of about 5 cm long/2.5 cm wide
- B. It is an unpaired, retroperitoneal, organ of about 5 cm long/2.5 cm wide
- C. It is supported by a pair of ligaments (the ovarian ligament and the suspensory ligament)
- D. It contains several groups of cells which form the white body (corpus albicans) responsible for producing female gametes
- E. It has follicles containing maturing oocytes that will be released during ovulation

14. The following statement(s) is/are true about the component parts of the uterus:

- A. Its upper part forms the body of the uterus
- B. The upper part of the body of the uterus is called cervix
- C. The inferior part of the uterus is called isthmus
- D. The uterine cavity continues with the vagina, and the latter continues with the cervix
- E. The cervical canal opens into the vagina through the external orifice of the cervix

15. Which of the following statements are true?

- A. The secretion of the cells lining the epididymis does not influence the composition of the seminal fluid
- B. The seminal fluid adapts its composition according to the secretions or the cells lining the epididymis
- C. Degradation products of stored sperm give seminal fluid its basic pH
- D. The pH of the seminal fluid is acid due to the degradation products of stored sperm
- E. Spermatozoa gain mobility in the epididymis in approximately two weeks

16. Choose the true statement(s) about hormones:

- A. Somatotrophic hormone (STH) stimulates body growth
- B. Thyroid hormones, amine hormones can be synthesized only when food contains a proper iodine contents
- C. Prolactin and STH are neurohypophyseal hormones
- D. Luteinizing hormone (LH) is a tropic hormone and stimulates testicular interstitial cell maturation
- E. Glucocorticoids are represented mainly by cortisol

17. Which of the following series of substances contain at least one hormone:

- A. Maltase, maltose, glycine, secretin, haemoglobin
- B. Acetylcholinesterase, intrinsic factor, myoglobin, erythropoiesis
- C. Phosphocreatine, histone, acetylcholine, prostaglandins, epinephrine
- D. Tyrosine, catalase, cyclic adenosine monophosphate, troponin
- E. Rh factor, fibrin, thromboplastin, cholecystokinin

18. Choose the true statement(s) referring to the adrenal medulla:

- A. It represents the innermost part of the adrenal gland
- B. It secretes hormones with complementary action to that of the sympathetic nervous system
- C. Its hormones are derived from cholesterol
- D. Its hormones are represented by adrenaline (epinephrine) and noradrenaline (norepinephrine)
- E. It secretes three types of hormones: mineralocorticoids, glucocorticoids and amine hormones

19. Choose the correct associations from below:

- A. Parathormone hyposecretion – low bone density
- B. Parathormone hypersecretion – low bone density
- C. Graves disease – thyroxine and triiodothyronine deficiency
- D. Myxoedema – thyroxine and triiodothyronine deficiency
- E. Inactive pancreatic beta cells – diabetes insipidus

20. The following statement(s) is/are true about the thymus:

- A. It is located in the inferior mediastinum
- B. It is situated behind the sternum
- C. It secretes thymosin
- D. It develops with age
- E. It contributes to B lymphocyte maturation

21. Choose the correct statement(s) referring to the plasma membrane:

- A. It mainly consists of proteins and phospholipids
- B. The lipids in the plasma membrane are arranged in two layers (bilayer structure)
- C. The proteins in the plasma membrane are arranged in two layers (bilayer structure)
- D. Has a solid mosaic structure due to the cholesterol which reduces its fluidity
- E. The proteins in the membrane carry out various functions (enzymatic, transmembrane transport)

22. The following statement(s) is/are true about adenosine triphosphate (ATP):

- A. When it eliminates its terminal phosphate group, it releases an energy equivalent to 7.3 kcal/mol
- B. When it decomposes in order to produce energy, it releases ribose and adenosine
- C. It serves as an energy source during muscle contraction
- D. It contains a single phosphate group with a high energy level, which is released under the action of ATP-ase
- E. In the muscle fiber, ATP must be constantly regenerated from ADP and phosphate groups

23. Choose the correct statement(s) referring to the rough endoplasmic reticulum:

- A. Is involved in protein synthesis (achieved by amino acid assembling in the attached ribosomes)
- B. Has certain structures attached, called lysosomes, which host the chemical combination of amino acids
- C. Is the site of lipid degradation
- D. Is an organelle consisting in a complex of membranes, which extend into the cytoplasm and have ribosomes attached in some of their areas
- E. Plays a role in protein synthesis through cellular respiration

24. Choose the correct associations from the statements below:

- A. Cleavage furrow – a groove in the kinetochore
- B. Cytokinesis – takes place after the telophase
- C. Mitosis and cytokinesis – make possible the growth of the body through sexual reproduction
- D. Mitosis and cytokinesis – replacement of old and deteriorated cells by forming new cells
- E. Cellular cleavage – strangulation of the cytoplasm by the cell membrane resulting in the formation of daughter cells

25. The following statement(s) referring to lysosomes is/are true:

- A. They contain enzymes which play a role in the cell digestion processes
- B. They represent the site for the cell's sodium and calcium deposits
- C. They contain enzymes which degrade the nutrient particles inside a cell and offers the final products to the cell
- D. They represent a source of salts such as sodium chloride
- E. They are vesicles which derive from the sacs of Golgi apparatus and contain enzymes for intracellular digestion

26. The following statement(s) is/are true referring to the cerebrospinal fluid:

- A. Cannot be found outside the dura mater
- B. Can be found in the space between the dura mater and the arachnoid
- C. It is collected by spinal tap (lumbar puncture) whenever a bacterial infection is suspected
- D. Whenever a disorder of the nervous system is suspected, a sample can be collected by spinal tap (lumbar puncture) for lab analysis
- E. Its function is to ensure the necessary nutrients required by the nerve cells of the central nervous system

27. The following statement(s) is/are true about serotonin:

- A. It is the single neurotransmitter in the parasympathetic nervous system
- B. It is not involved in sleep regulation
- C. It is a neurotransmitter present both in the encephalon and in the spinal cord
- D. It can be involved in certain mental functions or in the circadian rhythm
- E. It is the neurotransmitter specific to the motor plate

28. Choose the true statement(s) referring to the structure of the neuron:

- A. The cell body represents the major part of the cell's total size
- B. The cell body represents a small part of the cell's total size
- C. Dendrites are specialised in receiving nervous impulses and sending them from the cell body
- D. The surface of dendrites is covered with thousands of spines which help dendrites connect to other neurons
- E. The neuron's cell body contains the nucleus, mitochondria, Golgi apparatus, lysosomes, Nissl bodies

29. Referring to the central nervous system (CNS), the following statements are true:

- A. It consists of the encephalon (located in the cranial cavity) and the spinal cord (located in the spinal canal)
- B. It consists of 12 pairs of cranial nerves which connect the receptors and effectors with the encephalon
- C. It is the body's central control centre
- D. Certain CNS components receive the incoming information and release the appropriate reactions
- E. It consists of 31 pairs of spinal nerves which connect the encephalon to the spinal cord

30. The following statement(s) is/are true about the cranial nerves:

- A. They belong to the peripheral nervous system, together with the spinal nerves
- B. They belong to the central nervous system, together with the cerebral trunk
- C. Some of them originate in the cerebellar hemispheres
- D. They are designated by numbers (I – XII) and a different name for each
- E. The nerves I olfactory, II optic and VIII vestibulocochlear are sensory nerves

31 Choose the correct statement(s) referring to primary tastes:

- A. They are four in number: bittersweet, sourness, bitterness, saltiness
- B. They include the tastes of sweet and bitter
- C. The taste umami (savouriness) is connected to glutamate
- D. The taste bitter is perceived mainly at the back of the tongue
- E. The taste sour is mainly perceived by the receptors near the pharynx

32. The following statement(s) is/are true referring to the compartments of the eye:

- A. Both the anterior and the posterior compartment are subdivided into two regions
- B. The anterior compartment has two regions: the aqueous chamber and the vitreous chamber
- C. The anterior compartment has two regions: the anterior chamber and the posterior chamber
- D. The anterior chamber of the anterior compartment contains the aqueous humour
- E. The posterior chamber of the anterior compartment contains a gelatinous substance

33. The receptors for the perception of the 5 primary tastes are located as follows:

- A. For umami – near the larynx
- B. For umami – near the pharynx
- C. For sweetness – mainly at the tip of the tongue
- D. For sourness – at the back of the tongue
- E. For bitterness – at the back of the tongue

34. Choose the true statements referring to the iris:

- A. It is a component of the eyeball's middle layer
- B. It controls the quantity of light that passes through the pupil
- C. It contains pigments which are responsible for image formation
- D. It consists of two layers of striated muscles (a constrictive muscle and a dilator muscle)
- E. It belongs to the eyeball's middle layer together with the choroid and the ciliary body

35. The following statement(s) is/are true about pressure and vibration (related to the sense of touch):

- A. Light pressures and vibrations on the skin are not detected by Meissner corpuscles
- B. Strong vibrations on the skin are detected by Meissner corpuscles
- C. Strong pressure to the skin is detected by the Pacinian corpuscles
- D. Pain is perceived by all tactile receptors, with the exception of free nerve endings
- E. The impulses gathered by the pressure and vibration receptors are sent to the encephalon, where they are interpreted

36. The diaphysis and the epiphysis are components of:

- A. The ribs and sternum
- B. Carpal bones
- C. Bones of the pelvic girdle
- D. Humerus, femur, ulna
- E. Tibia, fibula, sternum

37. The following statement(s) referring to joints is/are true:

- A. They are organs connecting bones and muscles
- B. The term joint refers to the connexion between two or more bones
- C. One of their classification criteria is the range of movement they allow
- D. The term joint refers to the connection between muscles and ligaments
- E. The term joint refers to the connection between muscles and tendons

38. Choose the correct statement(s) referring to the histological structure of the bone:

- A. The compact bone has concentric rings organised in systems called osteons
- B. The osteon has perforating canals which connect the central canals to the bone canals
- C. The lacunae are concentric lamellae of the osteon and they contain osteocytes
- D. The concentric bone lamellae contain lacunae which contain osteocytes
- E. Unlike the perforating canals, the central canal has no blood vessels

39. Choose the true statement(s) referring to bone formation:

- A. It is the result of a process called ossification
- B. It is called intramembranous if it occurs in the connective membranes (in the case of long bones)
- C. All the bones are formed as a result of intramembranous ossification
- D. Osteoblasts are the main bone-forming cells
- E. There are two types of bone formation: intramembranous for flat bones and endochondral for long bones

40. Synarthrosis is a joint found:

- A. Between the diaphyses of the radius and the ulna, where it's called syndesmosis
- B. Between the flat bones of the skull, where it's called suture
- C. At the junction between the radius and the humerus, where it's called gomphosis
- D. Between the vertebral bodies, where it's called intervertebral disc
- E. Between the parietal bones, where it's called suture

41. The following statement(s) is/are true about myoglobin:

- A. It represents the molecule which contains heme and carries oxygen to the erythrocytes
- B. It binds oxygen molecules and stores them temporarily in the muscles
- C. Its presence in the muscle fibre decreases the necessity of a constant oxygen supply to the muscle during contraction
- D. It represents a deposit of high-energy phosphate bonds
- E. It participates in the completion of Krebs cycle

42. The following statement(s) is/are true about the cardiac muscle:

- A. It receives impulses generated by the cells of the excito-conductor system
- B. It is not under voluntary nervous control
- C. It has elongated and always unramified muscle fibres
- D. It has a striated microscopic aspect
- E. It has intercalated discs, common to all muscle tissue types

43. Muscle fibres contain:

- A. Proteins – myosin, troponin, actin in the striated muscle
- B. Protein – calmodulin, in the smooth muscle
- C. Troponin, calcium-fixating protein in the smooth muscle
- D. Actin and myosin in a 1: 16 ratio in the smooth muscle
- E. Calcium ions (Ca^{3+}) in the intracellular sarcoplasmic reticulum in the smooth muscle

44. Filament sliding cycles in striated muscles:

- A. Take place as long as adenosine triphosphate is available
- B. Take place very quickly, at millions of myosin ends
- C. Take place slowly, at both ends of the sarcomere
- D. Induce muscle relaxation by shortening sarcomeres
- E. Take place as long as there is a nerve stimulus

45. The following statement(s) is/are true about the smooth muscle:

- A. Its cytoplasm contains actin and myosin filaments, forming similar structures to that of microfibrils
- B. The contraction of the rectum wall muscle contributes to the elimination of the rectal content
- C. It has well-structured neuromuscular junctions
- D. It has diffuse junctions where neurotransmitters are released
- E. It can be classified into multi-unit and pluriunit smooth muscle

46. The tonsils:

- A. Consist in a bundle of lymphatic tissue located in the mucosa
- B. Are of three types: palatine, pharyngeal, lingual
- C. Belong to the lymphatic system
- D. Have a role in the body's defence
- E. Are of three types: submaxillary, submandibular, sublingual

47. The visceral peritoneum:

- A. Forms the external tunic of the gastrointestinal tract
- B. Is continuous with the parietal peritoneum
- C. Forms the internal tunic of the gastrointestinal tract
- D. Contains cells that secrete a fluid which lubricates the external surface of the organs
- E. Together with the parietal peritoneum, they form a space called „peritoneal cavity”

48. Dentin:

- A. Is one of the tooth's main components
- B. Is softer than dental enamel
- C. Lies on the tooth's external surface
- D. Is located inside the tooth's pulp
- E. Surrounds the tooth's pulp

49. Dentin – false statements:

- A. Surrounds the tooth's pulp, which is vascularised and innervated
- B. Is softer than dental enamel
- C. Lies under the enamel and represents the tooth's largest part
- D. Mainly consists of hydroxyapatite, having the same hardness as enamel
- E. Contains blood vessels, nerves and the tooth's connective tissue

50. The following statement(s) is/are true about deglutition and peristalsis:

- A. During deglutition, the tongue depresses and presses food to the roof of the mouth
- B. During deglutition, the tongue elevates and presses the bolus to the hard palate, pushing it towards the pharynx
- C. The food bolus enters the oesophagus after having passed the epiglottis which covers the pharynx
- D. Once it passes the epiglottis which covers the larynx, the food bolus enters the oesophagus
- E. Oesophageal peristalsis refers to the occurrence of contraction waves of the oesophageal smooth muscle layer (waves which push the food bolus to the stomach)