

1. Select the correct associations referring to body functions:

- A. Movement – voluntary or involuntary – is the result of muscle fibre contraction
- B. Conductivity – the property of a cell to send stimuli – is characteristic for bone and muscle cells
- C. Asexual reproduction – the production of a whole new individual – includes spermatogenesis and oogenesis
- D. Sexual reproduction – the division of a single cell – is the generation of two identical daughter cells
- E. Conductivity – the property of cells to send stimuli – is a characteristic of nervous and muscle cells

2. Choose the correct statement(s) referring to cytoplasm:

- A. It is the place where certain cellular metabolic processes take place
- B. It contains the cytoskeleton which consists of carbohydrate subunits
- C. It contains specialised structures called organelles (endoplasmic reticulum, Golgi apparatus, etc)
- D. It has a solid consistency, which is fundamental for a cell
- E. Several cellular functions are carried out in the cytoplasmic organelles

3. The plasma membrane is a semipermeable membrane because:

- A. It allows the passing of water from a low-concentration-solute area to a high-concentration-solute area
- B. It allows just certain molecules to pass (e. g., O₂, water, CO₂)
- C. It contains proteins called histones
- D. Together with the ribosomes, it is the location of protein synthesis
- E. It does not facilitate the passage of large molecules to or from the cell

4. Which of the following structures *do not belong* to cell organelles?

- A. Golgi apparatus, the endoplasmic reticulum
- B. Kinetochore, chromosome
- C. Mitochondria, ribosomes
- D. Centrosome, lysosomes
- E. Nucleolus, chromatin

5. The following statement(s) is/are true regarding proteins:

- A. They are inorganic compounds, used as enzymes in cellular chemical reactions
- B. They are organic compounds, used as structural material in the cells of the body
- C. They are present in the structure of microtubules and microfilaments
- D. They are absent from the structure of the cytoskeleton, consisting of microtubules, microfilaments and intermediate filaments
- E. They are specialised molecules which are exported by cells in order to be used in various extracellular activities

6. 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

7. A cross section of the spinal cord reveals:

- A. The nervous tissue enveloped by three meningeal layers
- B. The central canal also called ependymar canal
- C. A grey matter on the outside, consisting of horns (anterior, lateral and posterior)
- D. A grey matter on the inside consisting of horns
- E. A white mater on the outside consisting of myelinated nerve fibres

8. Which of the following membranes form the meninges?

- A. The dura mater, fibrous, resistant connective tissue
- B. The arachnoid, separated from the dura mater by the subarachnoid space
- C. The arachnoid, network-like thin layer
- D. The pia mater, richly vascularised external layer
- E. The pia mater, richly-vascularised very thin layer

9. The following processes are effects of the parasympathetic component of the autonomic (vegetative) nervous system:

- A. Slowing down of the heart rate and dilatation of the arteries
- B. Constriction of the pupil
- C. Stimulation of the digestion
- D. Inhibition of the erection of sex organs
- E. Contraction of the urinary bladder

10. According to their structure, neurons can be:

- A. Multipolar, when they have multiple axons and a single dendrite
- B. Multipolar, when they have multiple dendrites and a single axon
- C. Pseudounipolar, when they have a single projection which divides to form two dendrites
- D. Pseudounipolar, when they have a single projection which divides to form a dendrite and an axon
- E. Bipolar, when they have a single axon and a single dendrite

11. Choose the correct statement(s) about the olfactory receptors:

- A. They are specialised olfactory cells
- B. They are represented by multipolar ciliary cells in the olfactory mucosa
- C. They are chemoreceptors which suffer from olfactory fatigue
- D. They are located in the respiratory mucosa in the upper part of the oral cavity
- E. They are cells having olfactory cilia and a single nucleus

12. The following statement(s) is/are true about the eye as the organ of vision:

- A. It is stimulated by the light coming from the surrounding environment
- B. Its receptors belong to the class of chemoreceptors
- C. Its receptors belong to the class of photoreceptors
- D. The nervous impulses generated by light stimuli are interpreted in the brain
- E. The retina (a structure of the eye) detects light in its external layer, the retinal pigment epithelium

13. The primary tastes include:

- A. Sour, bitter, spicy
- B. Sour, bitter, umami
- C. Sour, bitter, sweet
- D. Umami, salty, spicy
- E. Sweet, salty, umami

14. The cone cells of the retina:

- A. Are receptor neurons
- B. Are located predominantly at the periphery of the retina
- C. Are concentrated in the central fovea
- D. Are responsible for day vision and for perceiving details and colours
- E. Is responsible for twilight vision

15. The following statement(s) is/are true about the crystalline:

- A. It belongs to the refractory structures of the eye
- B. It consists of a concentric protein fibrous material
- C. It is transparent and elastic
- D. It focuses light onto the choroid
- E. It is the main structure responsible for image focalising

16. According to their shape, bones can be:

- A. Long bones, such as the femur, the humerus and the scapula
- B. Long bones, such as the femur, the humerus and the tibia
- C. Flat bones, such as the scapula, the sternum and the cranial bones
- D. Short bones, such as the carpal and the tarsal bones
- E. Flat bones, such as the vertebrae, the ribs and the metatarsals

17. The compact bone tissue:

- A. Can be found in flat and short bones and in the epiphyses
- B. Is absent from the diaphysis of long bones
- C. Contains cavities with red hematopoietic marrow
- D. Is a component of the diaphysis of long bones
- E. Is less dense than spongy tissue

18. The following statement(s) is/are true about the bone tissue:

- A. In order to carry out their functions, bones must be hard and rigid
- B. In order to carry out their functions, bones shouldn't be flexible
- C. Bone flexibility is the ability of a bone to bend to a certain degree
- D. Short bones include the tarsals and carpals
- E. Characteristics such as hardness and flexibility are given by osteoclasts

19. The perforating canals connect the central canals in the:

- A. Epiphyseal plate
- B. Periosteum
- C. Compact bone
- D. Osteon
- E. Spongy bone

20. Choose the correct associations:

- A. Hydroxyapatite – crystalline structure – bone hardness
- B. Osteoporosis – calcium loss – high resistance to fractures
- C. High calcium intake – physical activity – prevention of osteoporosis
- D. Osteoblasts – highly active cells – bone-dissolving substances
- E. Physical activity – mechanical stress – bone formation by osteoblasts

21. 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

22. The red muscle:

- A. Contains a large quantity of myoglobin, an oxygen-storing protein
- B. Is a slow or oxidative muscle
- C. Is a glycolytic, fast muscle which contains a large quantity of glucose
- D. It can contract repeatedly but it can't withstand muscle fatigue
- E. It can withstand muscle fatigue, due to the oxygen stored in the myoglobin, which will be used in cellular respiration

23. Choose the statements which describe accurately the differences between the striated skeletal muscle and the cardiac muscle:

- A. They have different locations, the striated skeletal muscle being inserted onto the bones
- B. They have different locations, the cardiac muscle being also located in the walls of the heart's blood vessels
- C. The striated skeletal muscle fibre is multinucleated, while the cardiac muscle fibre has a single nucleus
- D. The striated skeletal muscle has a much slower contraction speed than the cardiac muscle
- E. The striated skeletal muscle has a much faster contraction speed than the cardiac muscle

24. The following statement(s) is/are true referring to the smooth muscle:

- A. It can be unitary and multi-unit
- B. The fibres of unitary smooth muscle have gap junctions
- C. The fibres of the multi-unit smooth muscle act in a coordinated, tightly interdependent fashion
- D. The smooth muscle fibre receives nerve impulses from the vegetative (autonomic) nerves
- E. It contains intermediate, contractile filaments, attached to the dense bodies in the entire cell

25. 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

26. Which of the anatomical structures below belong to the digestive system?

- A. The oral cavity, the oesophagus, the large bowel
- B. The nasal cavity, the oropharynx, the oesophagus
- C. The stomach, the small bowel, the large bowel
- D. The liver, the pancreas, the parathyroid glands
- E. The parotid glands, the liver, the pancreas

27. Choose the correct association referring to the teeth:

- A. Incisors – crown, body and root – cutting large pieces of food
- B. Canines – conical shape – grabbing and tearing food
- C. Premolars – flat teeth – cutting into smaller pieces/grinding food
- D. Central incisors – cutting large pieces of food – break through at the ages 7 - 21
- E. Molars – flat teeth - cutting food into smaller pieces

28. In the oral cavity:

- A. The tongue turns food into food bolus with the help of saliva
- B. Teeth turn food into food bolus with the help of saliva
- C. Teeth carry out the mechanical digestion of food
- D. The tongue carries out the mechanical digestion of food
- E. Food is mixed with salivary secretions

29. The following statement(s) referring to the digestive system is/are *not true*:

- A. It is a part of the gastrointestinal tract
- B. The tubular organs which make it up are represented by the salivary glands and the liver
- C. One of its functions is the digestion of food and absorption of nutrients
- D. One of its functions is the regulation of blood plasma volume
- E. It consists of the gastrointestinal tract and a number of accessory organs

30. The functions of the oral cavity are as follows:

- A. Ingestion of food
- B. Gustatory function
- C. Elimination of digested food
- D. Mechanical digestion of food
- E. Lubrication of food

31. Choose the correct statement(s) referring to blood group B:

- A. It has B antigen in the serum
- B. It has B antigen on the erythrocyte surface
- C. Can donate blood to blood group 0
- D. Can donate blood to blood group B
- E. Has anti-A antibodies in the serum

32. Choose the correct statement(s) about the heart:

- A. It is situated in the mediastinum, in the thoracic cavity
- B. It is bordered by the lungs, which overlap on it
- C. It is a two-cavity organ (an atrium and an auricle)
- D. It is a four-cavity organ (two atria and two ventricles)
- E. It lies posterior to the spinal column and anterior to the sternum

33. Choose the correct statement(s) referring to thrombocytes:

- A. Also called blood platelets, they are anucleated cells
- B. They are formed in the red bone marrow from megakaryocytes
- C. They are derived from the same precursor as red blood cells, called erythroblast
- D. Their approximate number is of 300000/mm³ blood
- E. They are involved in haemostasis by forming platelet aggregation

34. Choose the correct statement(s) about the portal hepatic system:

- A. It carries blood from the gastrointestinal tract and spleen to the liver
- B. Hepatic portal circulation takes place in two opposite directions
- C. It carries nutrients to the liver in order to be processed, the main vessel being the portal vein
- D. It carries low-oxygen blood as it has supplied the gastrointestinal tract
- E. After passing through the liver, the blood leaves it through the hepatic arteries, branches of the coeliac trunk

35. Blood consists of the following elements:

- A. Figurative elements, up to 45%
- B. Water, up to 99%
- C. Three types of plasma proteins (albumins, globulins, haemoglobin)
- D. Various ions (sodium, potassium, calcium, chloride, bicarbonate)
- E. Proteins that have a role in coagulation (fibrinogen)

36. 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

37. The kidneys consist of the following structures:

- A. Two distinct areas, cortical and medullary
- B. The renal cortex, inside the kidney
- C. The renal medulla, at the periphery of the kidney
- D. A deep area, the renal medulla, represented by the renal pyramids
- E. An external area, called cortex, containing renal glomeruli, parts of the nephron tubules and blood vessels

38. Choose the true statement(s) referring to the larynx:

- A. It belongs to the airways and it has a cartilaginous structure
- B. It is the passageway of food to the oesophagus
- C. It is a passageway of air from the pharynx to the trachea
- D. It can be described as having cartilaginous structures arranged similarly to a sphere
- E. It is involved in the production of sounds

39. The following statement(s) referring to the pulmonary alveoli is/are true:

- A. They are microscopic air sacs, approximately 300 million for each lung
- B. They are the site where pulmonary gas exchange takes place (O₂ is eliminated and exchanged for CO₂)
- C. In the alveoli, O₂ from the air is exchanged for CO₂ from the blood by a passive diffusion process
- D. The respiratory membrane of alveoli forms an extremely thin barrier which allows the passage of respiratory gases
- E. The alveoli receive oxygenated blood from a branch of the pulmonary artery

40. Choose the correct statement(s) referring to the trachea:

- A. It is a semi-rigid tube, approximately 10 – 12 millimetre long
- B. It branches in two main bronchi
- C. It continues the larynx
- D. It is lined with ciliary cells which filter air before it enters the bronchi
- E. It is a passageway for air and it houses the vocal cords

41. Choose the true statement(s) referring to the testicle:

- A. It lies in the scrotum, a sac-like structure suspended under the perineum
- B. It is a spherical organ, flattened superoinferiorly
- C. It is an oval, flattened organ
- D. Its function is to produce protein hormones, oestrogens and testosterone
- E. Its function is to produce sex hormones (testosterone) and reproductive cells (spermatozoa)

42. Which of the following statements are *false*?

- A. The urethra runs from the urinary bladder to the tip of the penis and has three parts
- B. Accessory organs such as seminal vesicles or bulbourethral glands secrete sperm-forming fluids
- C. During erection, the prostate's erectile tissue is filled with blood
- D. The prostate secretes approximately 30% of the seminal fluid
- E. The membranous urethra passes through the middle of the prostate and receives its secretions

43. Choose the true statements referring to the scrotum:

- A. It is a structure with multistratified walls which houses the testicles
- B. It is divided into two compartments separated by a thickened ridge
- C. The two compartments are delimited by the perineal raphe
- D. The deep layers of the scrotum wall contain the perineal raphe, a smooth, rather thick, muscle
- E. The dartos muscle in the deep layers of the scrotum is the site of spermatogenesis

44. 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

45. Choose the true statements referring to the female reproductive system:

- A. It produces and stores the female reproductive cells
- B. It transports female gametes
- C. The gametes produced by the female reproductive system are diploid cells
- D. It includes accessory glands and organs
- E. It includes the reproductive organs – the ova – also called gonads

46. Addison's disease occurs as a result of:

- A. Glucocorticoid hyposecretion
- B. Glucocorticoid hypersecretion
- C. Mineralocorticoid hyposecretion
- D. Mineralocorticoid hypersecretion
- E. Catecholamine hyposecretion

47. Choose the correct statement(s) referring to the suprarenal (adrenal) glands:

- A. They are paired glands, located at the bottom of the kidneys
- B. They are in number of two, located at the bottom of the kidneys
- C. They have a cortical (inner) part and a medullar (outer) part
- D. They have a cortical (outer) part and a medullar (inner) part
- E. They have a cortical part, which has an endocrine function, and a medullar part, which has an exocrine function

48. Choose the effects of parathormone (PTH) on bones:

- A. It inhibits osteoclast activity
- B. It stimulates osteoclast activity
- C. It increases bone calcium resorption
- D. It decreases calcium resorption in the renal tubules
- E. It decreases calcium resorption in the intestinal mucosa

49. Choose the true statement(s) referring to melatonin:

- A. It is a steroid hormone (steroid)
- B. It is secreted by the pineal gland
- C. It is believed to regulate the secretion of other hormones
- D. Together with melanin, they form an enzyme system
- E. It influences the circadian rhythm (the day – night cycle)

50. The symptoms of diabetes mellitus include:

- A. An overall lack of energy in the entire body
- B. Excessive thirst
- C. The excretion of excessive blood glucose through urine
- D. Increased quantity of water excreted by the kidneys and, implicitly, increased urine volume
- E. Decreased quantity of water excreted by the kidneys and, implicitly, decreased urine volume