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B. The gubernaculum is a striated muscle tissue ligament, responsible for guiding the descent of the testis into the scrotum
C. Cryptorchidism is a disorder where testicles descend into the scrotum by the end of the 7th month of pregnancy
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B. Constriction of the pupil
C. Stimulation of the digestion
D. Inhibition of the erection of sex organs
E. Contraction of the urinary bladder

17. Comparing spinal nerves and cranial nerves, one can state that:
A. They differ in number, there being 12 pairs of cranial nerves and 33 – 34 pairs of spinal nerves
B. Their apparent origin is the base of the encephalon (cranial nerves) and the spinal cord (spinal nerves)
C. Spinal nerves and some of the cranial nerves contain both sensory fibres and motor fibres
D. Some cranial nerves contain fibres belonging to the vegetative nervous system (the vagus nerve)
E. The spinal nerves innervate several structures such as the skin, skeletal muscles, joints, blood vessels, mucosae, sweat glands (with the exception of the head and the neck)

18. 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

19. Which of the following neurotransmitters belong to the class of catecholamines?
A. Acetylcholine, adrenaline and epinephrine
B. Adrenaline and noradrenaline
C. Dopamine, glycine and glutamate
D. Noradrenaline and dopamine
E. Serotonin and cholinesterase

20. Choose the correct statement(s) referring to cerebral hemispheres:
A. They contain more than 10 billion neurons
B. They represent the largest part of the encephalon
C. The shallow groove of the hemispheres is called fissure
D. Each hemisphere is divided into five lobes
E. Each hemisphere is divided into four lobes

21. In short, the following associations between sense organs and their anatomical location are true:
A. The olfactory mucosa – inferior in the nasal cavity
B. The olfactory mucosa – superior in the nasal cavity
C. Taste buds – the dorsal part of the tongue
D. The auditory apparatus – middle ear
E. The vestibular system – internal ear

22. Choose the correct associations:
A. Free nerve endings in the skin – exteroceptors - pain
B. Pacinian corpuscles – skin – strong pressure and vibrations
C. Meissner corpuscles – light pressure – strong vibrations
D. Hearing – skin receptors – muscle and joint receptors
E. Merkel discs – skin – tactile stimuli

23. Choose the correct statement(s) referring to senses:
A. Senses include vision, hearing and balance, excluding the sense of touch which belongs to the integumentary system
B. They include the sense of touch, balance and vision
C. Different sense organs have the same type of receptors
D. Sense organs have highly specialised receptors
E. They are tightly associated both functionally and structurally with the nervous system

24. 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

25. Choose the correct statement(s) referring to taste:
A. It is also called gustation
B. It requires the contact between receptor connective cells and the molecules of substances
C. Its receptors are situated in the taste buds
D. It is involved in the stimulation of proprioceptors of the pharynx
E. The receptors of the taste buds detect chemical substances after they have been dissolved

26. The following statement(s) is/are true referring to the red bone marrow:
A. It has a role in haematopoiesis
B. It can be found in the spongy bones
C. It is absent in bones such as the vertebrae or the sternum
D. It has a role in the production of red blood cells, leukocytes and platelets
E. It has a role in the production of erythrocytes, thrombocytes and osteocytes

27. Choose the correct statement(s) referring to the composition of bones:
A. $CaCO_3$ is found in the composition of hydroxyapatite
B. Collagen is a substance belonging to carbohydrates found in the bone matrix
C. Protein collagen fibres are responsible for bone flexibility
D. In a normal bone, calcium phosphate does not contribute to the formation of hydroxyapatite
E. $Ca_3(PO_4)_2$ is an important component of hydroxyapatite

28. The following statement(s) is/are true about the knee joint:
A. It is a saddle diarthrosis
B. It has a fibrous capsule and a synovial membrane, being a synovial joint
C. It does not have menisci, only intervertebral discs
D. It has two semilunar cartilaginous discs (menisci)
E. It joins the femur to the tibia

29. Choose the correct statement(s) referring to the joints of the lower limb:
A. The joint between the femur and the acetabulum is an example of trochlear joint
B. The joint between the femur and the acetabulum is an example of spheroidal joint
C. The pubic symphysis is an amphiarthrosis, also found in the bony pelvis
D. A saddle joint is a joint between tarsal bones and metacarpal bones
E. Menisci have a semilunar shape and there are two of them for each knee

30. Choose the true statement(s) from below referring to the histological structure of the bone:
A. A central canal containing nerves and blood capillaries can be found only in certain osteons
B. Each perforating canal is surrounded by concentric rings of the osteon
C. The compact bone contains a number of cells and interconnected canals called haversian canals
D. The spongy bone contains a lattice-like network of trabeculae
E. Trabecullae are lattice-like bone structures which form the spongy bone

31. Choose the correct associations referring to the three types of muscle tissue:
A. Skeletal striated muscle – blood vessels, some ducts – cardiac wall
B. Multiple nuclei – skeletal striated tissue - myocardium
C. Central single nucleus – smooth muscle tissue, myocardium
D. Sarcomeres – skeletal striated muscle tissue – cardiac muscle tissue
E. Intercalated discs – smooth muscle tissue

32. Choose the statements that 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

33. 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

34. 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

35. The following statement(s) is/are true about the structure of the skeletal muscle fibre:
A. Myofibrils run along the transverse axis in sarcomeres
B. The repetitive distribution of sarcomeres gives the muscle its characteristic striated aspect
C. The clear bands are called A bands and are divided in the middle by Z lines
D. The clear bands, called I bands, are wide and contain actin
E. Thin filaments consist of actin (contractile protein in the structure of myofibrils)

36. Choose the statements describe correctly the position of the oesophagus and of the stomach in the body:
A. The stomach is situated in the upper abdominal cavity, in the umbilical region
B. The stomach is situated in the upper left part of the abdomen
C. The oesophagus penetrates the diaphragm through the oesophageal hiatus
D. The stomach lies with its medial concave surface (the lesser curvature) oriented towards the liver
E. The oesophagus lies entirely in the abdominal subdivision of the abdominopelvic cavity

37. The large bowel consists of:
A. The cecum and the vermiform appendix
B. The ascending colon which lies vertically on the right of the abdomen
C. The descending colon which continues with the ascending colon
D. The sigmoid colon which is the continuation of the transverse colon and continues with the rectum
E. The transverse colon which horizontally crosses the abdomen, near the stomach and the spleen

38. The functions of the liver are:
A. Glycogen deposition from gluconeogenesis, when glucose blood levels increase
B. Glycogen deposition by glycogenogenesis, when glucose blood level is high
C. The site of gluconeogenesis, when blood sugar levels are low

D. Enzyme production (for example acetyl coenzyme A) which initiates the process of digestion
E. Vitamin deposition such as vitamins A, B12, D, E, K

39. The functions of the large bowel include:
A. Protein absorption by osmosis
B. Water absorption, about 300-400 ml daily
C. Ion absorption (mainly Na^+)
D. Chemical food digestion
E. The formation of faeces that will be discharged by defecation

40. The following statement(s) is/are true about the palate – the structure the forms the roof of the mouth:
A. It consists of a hard anterior part and a soft back part
B. The anterior part of the palate is called the soft palate
C. The uvula projects inferiorly from the hard palate
D. The uvula represents a conic projection of the soft palate
E. The tongue is inserted to the roof of the oral cavity

41. Choose the true statement(s) referring to whole blood:
A. Its two major components are plasma and figurative elements
B. Its components are represented by plasm, blood cells (erythrocytes and leukocytes) and platelets
C. The greatest part of its figurative elements is represented by erythrocytes or red blood cells
D. The smallest part of its figurative elements is represented by erythrocytes or red blood cells
E. The greatest part of figurative cells is represented by thrombocytes or platelets

42. Choose the correct statement(s) about the atria:
A. They are two cavities, situated superior to the ventricles
B. Both have a flat, wrinkly, projection called atrial appendage or auricle
C. The left atrium receives blood from the superior vena cava
D. The right atrium receives blood from the lungs, via the pulmonary veins
E. They are cavities which serve to fill the heart with blood

43. Choose the correct statement(s) about blood vessels:
A. They form a network of tubes which transport blood from the heart to the body's tissues and back
B. The vessels that transport blood to the tissues are called veins
C. Veins result from the union of venules (small veins) and carry blood back to the heart
D. Capillaries leave the cellular environment and form arterioles
E. Arteries are divided into small vessels called arterioles and the latter are subdivided into capillaries

44. 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

45. White blood cells or leukocytes:
A. Their primary role is to protect tissues against infections and foreign substances in the body
B. They have a nucleus which can have two or more lobes or can have different sizes and shapes
C. They are anucleated, just like erythrocytes
D. They have cellular organelles, but they don't have a nucleus
E. Enter the blood stream by diapedesis and leave the blood stream in the same way

46. The pharynx has three parts:
A. The nasopharynx, located posterior to the nasal cavities and inferior to the palate veil
B. The oropharynx, situated posterior to the oral cavity
C. The oropharynx where the digestive and respiratory tracts meet

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47. 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

48. The following statement(s) referring to the nose is/are true:
A. It belongs to the conducting zone of the respiratory system
B. It has an external part consisting of cartilage and skin
C. It is adapted to filter, cool and dry air
D. It has two internal parts called nasal cavities
E. It represents the normal entry way of air in the respiratory system

49. Choose the true statement(s) about the ureter:
A. Its inferior part opens in the urinary bladder
B. Its superior part continues the renal pelvis
C. It is a tubular organ where urine accumulates
D. It is a long tube which carry urine to the urinary bladder
E. It transports urine to the gallbladder through peristaltic waves

50. In relation to the diaphragm, the kidneys lie:
A. Superior to the diaphragm, in the abdominal cavity
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E. Trabecullae are lattice-like bone structures which form the spongy bone

41. Choose the correct associations referring to the three types of muscle tissue:
A. Skeletal striated muscle – blood vessels, some ducts – cardiac wall
B. Multiple nuclei – skeletal striated tissue - myocardium
C. Central single nucleus – smooth muscle tissue, myocardium
D. Sarcomeres – skeletal striated muscle tissue – cardiac muscle tissue
E. Intercalated discs – smooth muscle tissue

42. Choose the statements that 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

43. 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

44. 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

45. The following statement(s) is/are true about the structure of the skeletal muscle fibre:
A. Myofibrils run along the transverse axis in sarcomeres
B. The repetitive distribution of sarcomeres gives the muscle its characteristic striated aspect
C. The clear bands are called A bands and are divided in the middle by Z lines
D. The clear bands, called I bands, are wide and contain actin
E. Thin filaments consist of actin (contractile protein in the structure of myofibrils)

46. Choose the statements describe correctly the position of the oesophagus and of the stomach in the body:
A. The stomach is situated in the upper abdominal cavity, in the umbilical region
B. The stomach is situated in the upper left part of the abdomen
C. The oesophagus penetrates the diaphragm through the oesophageal hiatus
D. The stomach lies with its medial concave surface (the lesser curvature) oriented towards the liver
E. The oesophagus lies entirely in the abdominal subdivision of the abdominopelvic cavity

47. The large bowel consists of:
A. The cecum and the vermiform appendix
B. The ascending colon which lies vertically on the right of the abdomen
C. The descending colon which continues with the ascending colon
D. The sigmoid colon which is the continuation of the transverse colon and continues with the rectum
E. The transverse colon which horizontally crosses the abdomen, near the stomach and the spleen

48. The functions of the liver are:
A. Glycogen deposition from gluconeogenesis, when glucose blood levels increase
B. Glycogen deposition by glycogenogenesis, when glucose blood level is high
C. The site of gluconeogenesis, when blood sugar levels are low
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50. The following statement(s) is/are true about the palate – the structure the forms the roof of the mouth:
A. It consists of a hard anterior part and a soft back part
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11. Choose the true statement(s) referring to whole blood:
A. Its two major components are plasma and figurative elements
B. Its components are represented by plasm, blood cells (erythrocytes and leukocytes) and platelets
C. The greatest part of its figurative elements is represented by erythrocytes or red blood cells
D. The smallest part of its figurative elements is represented by erythrocytes or red blood cells
E. The greatest part of figurative cells is represented by thrombocytes or platelets

12. Choose the correct statement(s) about the atria:
A. They are two cavities, situated superior to the ventricles
B. Both have a flat, wrinkly, projection called atrial appendage or auricle
C. The left atrium receives blood from the superior vena cava
D. The right atrium receives blood from the lungs, via the pulmonary veins
E. They are cavities which serve to fill the heart with blood

13. Choose the correct statement(s) about blood vessels:
A. They form a network of tubes which transport blood from the heart to the body's tissues and back
B. The vessels that transport blood to the tissues are called veins
C. Veins result from the union of venules (small veins) and carry blood back to the heart
D. Capillaries leave the cellular environment and form arterioles
E. Arteries are divided into small vessels called arterioles and the latter are subdivided into capillaries

14. 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

15. White blood cells or leukocytes:
A. Their primary role is to protect tissues against infections and foreign substances in the body
B. They have a nucleus which can have two or more lobes or can have different sizes and shapes
C. They are anucleated, just like erythrocytes
D. They have cellular organelles, but they don't have a nucleus
E. Enter the blood stream by diapedesis and leave the blood stream in the same way

16. The pharynx has three parts:
A. The nasopharynx, located posterior to the nasal cavities and inferior to the palate veil
B. The oropharynx, situated posterior to the oral cavity
C. The oropharynx where the digestive and respiratory tracts meet
D. The laryngopharynx, situated posterior to the larynx
E. The nasopharynx, situated posterior to the nasal cavities

17. 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

18. The following statement(s) referring to the nose is/are true:
A. It belongs to the conducting zone of the respiratory system
B. It has an external part consisting of cartilage and skin
C. It is adapted to filter, cool and dry air
D. It has two internal parts called nasal cavities
E. It represents the normal entry way of air in the respiratory system

19. Choose the true statement(s) about the ureter:
A. Its inferior part opens in the urinary bladder
B. Its superior part continues the renal pelvis
C. It is a tubular organ where urine accumulates
D. It is a long tube which carry urine to the urinary bladder
E. It transports urine to the gallbladder through peristaltic waves

20. In relation to the diaphragm, the kidneys lie:
A. Superior to the diaphragm, in the abdominal cavity
B. Inferior to the diaphragm, in the abdominal cavity
C. The upper extremity is higher (close to the diaphragm), in the left kidney
D. The upper extremity is higher (close to the diaphragm), in the right kidney
E. The upper extremity is higher (close to the diaphragm), in both kidneys

21. Which of the following statements referring to the development of the testicles are true?
A. During the foetal phase, testicles develop in the abdominal cavity, near the kidney, and they descend to the scrotum until the 7^{th} month of pregnancy
B. The gubernaculum is a striated muscle tissue ligament, responsible for guiding the descent of the testis into the scrotum
C. Cryptorchidism is a disorder where testicles descend into the scrotum by the end of the 7^{th} month of pregnancy
D. Cryptorchidism may lead to infertility and requires surgical intervention
E. The temperature inside the abdominal cavity, a few degrees higher than that in the scrotum, prevents the normal process of spermatogenesis, which is why testicles need to descend in the scrotum

22. Choose the true statements referring to the ovaries:
A. They are paired organs which produce ova
B. They secrete female sex hormones (progesterone and oestrogen)
C. They are situated in the abdominal cavity, intraperitoneally
D. They are small and almond-shaped
E. Also called gonads, they produce the egg cell or zygote, which will be expelled into the fallopian tubes

23. 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 maturating oocytes that will be released during ovulation

24. Which of the following statements referring to the male reproductive system are true?
A. Its reproductive cells are called gametes, just like those of the female reproductive system
B. It is responsible for producing, storing, maintaining and transporting male reproductive cells
C. It has two pairs of gonads which produce gametes and hormones
D. The system has ducts which receive and transport reproductive cells
E. The system has accessory glands which secrete fluids that are transported through ducts

25. Choose the true statements referring to primary spermatocytes:
A. They result from the mitotic division of spermatogonia
B. They are diploid cells (2n), their nucleus containing 46 chromosomes per cell
C. They are haploid cells (n), their nucleus containing 23 chromosomes per cell
D. They are diploid cells (2n), their nucleus containing 23 chromosomes per cell
E. They develop in the convoluted seminiferous tubules and they are moved to the inner regions of the latter

26. Choose the true statements referring to the mechanism of action of steroid hormones:
A. They cross easily the cell membrane, dissolving in phospholipids
B. Being highly hydrophilic, they need specific transport systems to penetrate the cell membrane
C. Being highly hydrophobic, they cannot penetrate the cell membrane and bind to the receptors on the cell surface
D. They combine with phospholipids in the cytoplasm of target cells, a phenomenon that leads to protein-synthesis inhibition
E. They combine with proteins in the cytoplasm of target cells, resulting a complex that stimulates the activity of certain genes that encode specific types of messenger RNA molecules

27. Which of the following statements referring to diabetes mellitus are true?
A. Low insulin quantity, its absence or reduced number of insulin receptors indicate diabetes (type 1, type 2)
B. In diabetes, the kidney facilitates the elimination of excessive blood glucose through the liver
C. In diabetes, the kidney facilitates the elimination of excessive blood glucose through urine
D. The excretion of glucose through urine happens in parallel with the decrease of the eliminated water quantity and an increase in urine concentration
E. The excretion of glucose through urine happens in parallel with the increase of the eliminated water quantity and the dilution of urine

28. Which of the following statement(s) referring to steroid hormones is/are true?
A. They are membrane-phospholipid soluble
B. They have a lipid structure
C. They combine with phospholipids in the cytoplasm of target cells
D. Inside the cell, they combine with proteins resulting a complex that stimulates genes, which encode messenger RNA molecules (mRNA)
E. Inside the cell, they combine with carbohydrates resulting a complex that will trigger protein synthesis

29. Choose the true statement(s) referring to the energy-rich chemical compounds:
A. DNA is exclusively present in the cell nucleus
B. ATP is transformed into AMPC under the action of the enzyme adenylate cyclase

C. Unbinding AMP yields ADP and an inorganic phosphate molecule
D. Creatine phosphate ensures ATP reconstruction by muscle oxidation
E. Unbinding an ATP molecule, with the subsequent formation of ADP and an inorganic phosphate molecule, releases energy (7.3 kilocalories/ATP mol)

30. The following statement(s) referring to the diseases induced by parathormone (PTH) hypersecretion is/are true:
A. It induces the decrease of plasma concentration
B. They can also be caused by a parathyroid tumour
C. They are never induced by a parathyroid tumour
D. Its characteristic signs are represented by bone deformity
E. Its characteristic signs are represented by low bone density

31. Select the correct statements referring to cytology:
A. It is one of the branches of physiology
B. It is the science that studies the structures of the body visible without the use of a microscope
C. It is the study of cells and their functions
D. It is the study of the excretory system and its functions
E. It studies of the functions of the nervous system and its involvement in human behavior

32. The endoplasmic reticulum can be described as being:
A. A cytoplasmic organelle playing a specific role in protein synthesis (translation)
B. A functional structure located in the cytoplasm, playing a role in Ca^{2+} depositing
C. A complex of membranes which extend into the cytoplasm
D. The site of cellular respiration, containing the electron transport system
E. Of two types, smooth (site of lipid and membrane synthesis) and rough (with attached ribosomes)

33. Select the *false* statement(s) referring the permeability of the cell membrane:
A. Oxygen molecules pass from pulmonary alveolae to red blood cells by osmosis
B. If one introduces red blood cells into a hypertonic solution, they will undergo the process of hemolysis
C. Plasma membrane, being semipermeable, facilitates the passage of small molecules
D. Active transport is achieved in the sense of the concentration gradient
E. In order to coordinate active transport, energy is obtained by disassembling a compound that contains high-energy- potential phosphate chains (adenosine triphosphate)

34. Select the true statement(s) from the answers below:
A. An organ consists of two or more types of tissues
B. The stomach consists of all four main types of tissues: epithelial, connective, muscle and nervous
C. A system consists of several organs with different structures but identical functions
D. The muscle system includes striated muscles, smooth muscles and the cardiac muscle
E. The urinary system consists of the kidneys, the bladder and the associated urinary tracts

35. Choose the correct statement(s) referring to mitosis:
A. It is one of the two phases of a cell cycle, together with the interphase
B. It is one of the two phases of a cell cycle, together with the chromosome spiralisation
C. It is the phase of the cell cycle in which the cell's nuclear DNA is divided between the two daughter cells
D. Mitosis is followed by the S phase, a stage of interphase
E. It is the only period when the cell synthesizes structural proteins

36. The following processes are effects of the parasympathetic component of the autonomic (vegetative) nervous system:
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B. Constriction of the pupil

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D. For sourness – at the back of the tongue
E. For bitterness – at the back of the tongue

5. Choose the correct statement(s) referring to taste:
A. It is also called gustation
B. It requires the contact between receptor connective cells and the molecules of substances
C. Its receptors are situated in the taste buds
D. It is involved in the stimulation of proprioceptors of the pharynx
E. The receptors of the taste buds detect chemical substances after they have been dissolved

6. The following statement(s) is/are true referring to the red bone marrow:
A. It has a role in haematopoiesis
B. It can be found in the spongy bones
C. It is absent in bones such as the vertebrae or the sternum
D. It has a role in the production of red blood cells, leukocytes and platelets
E. It has a role in the production of erythrocytes, thrombocytes and osteocytes

7. Choose the correct statement(s) referring to the composition of bones:
A. $CaCO_3$ is found in the composition of hydroxyapatite
B. Collagen is a substance belonging to carbohydrates found in the bone matrix
C. Protein collagen fibres are responsible for bone flexibility
D. In a normal bone, calcium phosphate does not contribute to the formation of hydroxyapatite
E. $Ca_3(PO_4)_2$ is an important component of hydroxyapatite

8. The following statement(s) is/are true about the knee joint:
A. It is a saddle diarthrosis
B. It has a fibrous capsule and a synovial membrane, being a synovial joint

C. It does not have menisci, only intervertebral discs
D. It has two semilunar cartilaginous discs (menisci)
E. It joins the femur to the tibia

9. Choose the correct statement(s) referring to the joints of the lower limb:
A. The joint between the femur and the acetabulum is an example of trochlear joint
B. The joint between the femur and the acetabulum is an example of spheroidal joint
C. The pubic symphysis is an amphiarthrosis, also found in the bony pelvis
D. A saddle joint is a joint between tarsal bones and metacarpal bones
E. Menisci have a semilunar shape and there are two of them for each knee

10. Choose the true statement(s) from below referring to the histological structure of the bone:
A. A central canal containing nerves and blood capillaries can be found only in certain osteons
B. Each perforating canal is surrounded by concentric rings of the osteon
C. The compact bone contains a number of cells and interconnected canals called haversian canals
D. The spongy bone contains a lattice-like network of trabeculae
E. Trabecullae are lattice-like bone structures which form the spongy bone

11. Choose the correct associations referring to the three types of muscle tissue:
A. Skeletal striated muscle – blood vessels, some ducts – cardiac wall
B. Multiple nuclei – skeletal striated tissue - myocardium
C. Central single nucleus – smooth muscle tissue, myocardium
D. Sarcomeres – skeletal striated muscle tissue – cardiac muscle tissue
E. Intercalated discs – smooth muscle tissue

12. Choose the statements that 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

13. 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

14. 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

15. The following statement(s) is/are true about the structure of the skeletal muscle fibre:
A. Myofibrils run along the transverse axis in sarcomeres
B. The repetitive distribution of sarcomeres gives the muscle its characteristic striated aspect
C. The clear bands are called A bands and are divided in the middle by Z lines

D. The clear bands, called I bands, are wide and contain actin
E. Thin filaments consist of actin (contractile protein in the structure of myofibrils)

16. Choose the statements describe correctly the position of the oesophagus and of the stomach in the body:
A. The stomach is situated in the upper abdominal cavity, in the umbilical region
B. The stomach is situated in the upper left part of the abdomen
C. The oesophagus penetrates the diaphragm through the oesophageal hiatus
D. The stomach lies with its medial concave surface (the lesser curvature) oriented towards the liver
E. The oesophagus lies entirely in the abdominal subdivision of the abdominopelvic cavity

17. The large bowel consists of:
A. The cecum and the vermiform appendix
B. The ascending colon which lies vertically on the right of the abdomen
C. The descending colon which continues with the ascending colon
D. The sigmoid colon which is the continuation of the transverse colon and continues with the rectum
E. The transverse colon which horizontally crosses the abdomen, near the stomach and the spleen

18. The functions of the liver are:
A. Glycogen deposition from gluconeogenesis, when glucose blood levels increase
B. Glycogen deposition by glycogenogenesis, when glucose blood level is high
C. The site of gluconeogenesis, when blood sugar levels are low
D. Enzyme production (for example acetyl coenzyme A) which initiates the process of digestion
E. Vitamin deposition such as vitamins A, B12, D, E, K

19. The functions of the large bowel include:
A. Protein absorption by osmosis
B. Water absorption, about 300-400 ml daily
C. Ion absorption (mainly Na^+)
D. Chemical food digestion
E. The formation of faeces that will be discharged by defecation

20. The following statement(s) is/are true about the palate – the structure the forms the roof of the mouth:
A. It consists of a hard anterior part and a soft back part
B. The anterior part of the palate is called the soft palate
C. The uvula projects inferiorly from the hard palate
D. The uvula represents a conic projection of the soft palate
E. The tongue is inserted to the roof of the oral cavity

21. Choose the true statement(s) referring to whole blood:
A. Its two major components are plasma and figurative elements
B. Its components are represented by plasm, blood cells (erythrocytes and leukocytes) and platelets
C. The greatest part of its figurative elements is represented by erythrocytes or red blood cells
D. The smallest part of its figurative elements is represented by erythrocytes or red blood cells
E. The greatest part of figurative cells is represented by thrombocytes or platelets

22. Choose the correct statement(s) about the atria:
A. They are two cavities, situated superior to the ventricles
B. Both have a flat, wrinkly, projection called atrial appendage or auricle
C. The left atrium receives blood from the superior vena cava
D. The right atrium receives blood from the lungs, via the pulmonary veins
E. They are cavities which serve to fill the heart with blood

23. Choose the correct statement(s) about blood vessels:
A. They form a network of tubes which transport blood from the heart to the body's tissues and back
B. The vessels that transport blood to the tissues are called veins
C. Veins result from the union of venules (small veins) and carry blood back to the heart
D. Capillaries leave the cellular environment and form arterioles
E. Arteries are divided into small vessels called arterioles and the latter are subdivided into capillaries

24. 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

25. White blood cells or leukocytes:
A. Their primary role is to protect tissues against infections and foreign substances in the body
B. They have a nucleus which can have two or more lobes or can have different sizes and shapes
C. They are anucleated, just like erythrocytes
D. They have cellular organelles, but they don't have a nucleus
E. Enter the blood stream by diapedesis and leave the blood stream in the same way

26. The pharynx has three parts:
A. The nasopharynx, located posterior to the nasal cavities and inferior to the palate veil
B. The oropharynx, situated posterior to the oral cavity
C. The oropharynx where the digestive and respiratory tracts meet
D. The laryngopharynx, situated posterior to the larynx
E. The nasopharynx, situated posterior to the nasal cavities

27. 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

28. The following statement(s) referring to the nose is/are true:
A. It belongs to the conducting zone of the respiratory system
B. It has an external part consisting of cartilage and skin
C. It is adapted to filter, cool and dry air
D. It has two internal parts called nasal cavities
E. It represents the normal entry way of air in the respiratory system

29. Choose the true statement(s) about the ureter:
A. Its inferior part opens in the urinary bladder
B. Its superior part continues the renal pelvis
C. It is a tubular organ where urine accumulates
D. It is a long tube which carry urine to the urinary bladder
E. It transports urine to the gallbladder through peristaltic waves

30. In relation to the diaphragm, the kidneys lie:
A. Superior to the diaphragm, in the abdominal cavity
B. Inferior to the diaphragm, in the abdominal cavity
C. The upper extremity is higher (close to the diaphragm), in the left kidney
D. The upper extremity is higher (close to the diaphragm), in the right kidney
E. The upper extremity is higher (close to the diaphragm), in both kidneys

31. Which of the following statements referring to the development of the testicles are true?
A. During the foetal phase, testicles develop in the abdominal cavity, near the kidney, and they descend to the scrotum until the 7th month of pregnancy
B. The gubernaculum is a striated muscle tissue ligament, responsible for guiding the descent of the testis into the scrotum
C. Cryptorchidism is a disorder where testicles descend into the scrotum by the end of the 7th month of pregnancy
D. Cryptorchidism may lead to infertility and requires surgical intervention
E. The temperature inside the abdominal cavity, a few degrees higher than that in the scrotum, prevents the normal process of spermatogenesis, which is why testicles need to descend in the scrotum

32. Choose the true statements referring to the ovaries:
A. They are paired organs which produce ova
B. They secrete female sex hormones (progesterone and oestrogen)
C. They are situated in the abdominal cavity, intraperitoneally
D. They are small and almond-shaped
E. Also called gonads, they produce the egg cell or zygote, which will be expelled into the fallopian tubes

33. 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 maturating oocytes that will be released during ovulation

34. Which of the following statements referring to the male reproductive system are true?
A. Its reproductive cells are called gametes, just like those of the female reproductive system
B. It is responsible for producing, storing, maintaining and transporting male reproductive cells
C. It has two pairs of gonads which produce gametes and hormones
D. The system has ducts which receive and transport reproductive cells
E. The system has accessory glands which secrete fluids that are transported through ducts

35. Choose the true statements referring to primary spermatocytes:
A. They result from the mitotic division of spermatogonia
B. They are diploid cells (2n), their nucleus containing 46 chromosomes per cell
C. They are haploid cells (n), their nucleus containing 23 chromosomes per cell
D. They are diploid cells (2n), their nucleus containing 23 chromosomes per cell
E. They develop in the convoluted seminiferous tubules and they are moved to the inner regions of the latter

36. Choose the true statements referring to the mechanism of action of steroid hormones:
A. They cross easily the cell membrane, dissolving in phospholipids
B. Being highly hydrophilic, they need specific transport systems to penetrate the cell membrane
C. Being highly hydrophobic, they cannot penetrate the cell membrane and bind to the receptors on the cell surface
D. They combine with phospholipids in the cytoplasm of target cells, a phenomenon that leads to protein-synthesis inhibition
E. They combine with proteins in the cytoplasm of target cells, resulting a complex that stimulates the activity of certain genes that encode specific types of messenger RNA molecules

37. Which of the following statements referring to diabetes mellitus are true?
A. Low insulin quantity, its absence or reduced number of insulin receptors indicate diabetes (type 1, type 2)
B. In diabetes, the kidney facilitates the elimination of excessive blood glucose through the liver
C. In diabetes, the kidney facilitates the elimination of excessive blood glucose through urine
D. The excretion of glucose through urine happens in parallel with the decrease of the eliminated water quantity and an increase in urine concentration
E. The excretion of glucose through urine happens in parallel with the increase of the eliminated water quantity and the dilution of urine

38. Which of the following statement(s) referring to steroid hormones is/are true?
A. They are membrane-phospholipid soluble
B. They have a lipid structure
C. They combine with phospholipids in the cytoplasm of target cells
D. Inside the cell, they combine with proteins resulting a complex that stimulates genes, which encode messenger RNA molecules (mRNA)
E. Inside the cell, they combine with carbohydrates resulting a complex that will trigger protein synthesis

39. Choose the true statement(s) referring to the energy-rich chemical compounds:
A. DNA is exclusively present in the cell nucleus
B. ATP is transformed into AMPC under the action of the enzyme adenylate cyclase
C. Unbinding AMP yields ADP and an inorganic phosphate molecule
D. Creatine phosphate ensures ATP reconstruction by muscle oxidation
E. Unbinding an ATP molecule, with the subsequent formation of ADP and an inorganic phosphate molecule, releases energy (7.3 kilocalories/ATP mol)

40. The following statement(s) referring to the diseases induced by parathormone (PTH) hypersecretion is/are true:
A. It induces the decrease of plasma concentration
B. They can also be caused by a parathyroid tumour
C. They are never induced by a parathyroid tumour
D. Its characteristic signs are represented by bone deformity
E. Its characteristic signs are represented by low bone density

41. Select the correct statements referring to cytology:
A. It is one of the branches of physiology
B. It is the science that studies the structures of the body visible without the use of a microscope
C. It is the study of cells and their functions
D. It is the study of the excretory system and its functions
E. It studies of the functions of the nervous system and its involvement in human behavior

42. The endoplasmic reticulum can be described as being:
A. A cytoplasmic organelle playing a specific role in protein synthesis (translation)
B. A functional structure located in the cytoplasm, playing a role in Ca^{2+} depositing
C. A complex of membranes which extend into the cytoplasm
D. The site of cellular respiration, containing the electron transport system
E. Of two types, smooth (site of lipid and membrane synthesis) and rough (with attached ribosomes)

43. Select the *false* statement(s) referring the permeability of the cell membrane:
A. Oxygen molecules pass from pulmonary alveolae to red blood cells by osmosis
B. If one introduces red blood cells into a hypertonic solution, they will undergo the process of hemolysis
C. Plasma membrane, being semipermeable, facilitates the passage of small molecules
D. Active transport is achieved in the sense of the concentration gradient
E. In order to coordinate active transport, energy is obtained by disassembling a compound that contains high-energy- potential phosphate chains (adenosine triphosphate)

44. Select the true statement(s) from the answers below:
A. An organ consists of two or more types of tissues
B. The stomach consists of all four main types of tissues: epithelial, connective, muscle and nervous
C. A system consists of several organs with different structures but identical functions
D. The muscle system includes striated muscles, smooth muscles and the cardiac muscle
E. The urinary system consists of the kidneys, the bladder and the associated urinary tracts

45. Choose the correct statement(s) referring to mitosis:
A. It is one of the two phases of a cell cycle, together with the interphase
B. It is one of the two phases of a cell cycle, together with the chromosome spiralisation
C. It is the phase of the cell cycle in which the cell's nuclear DNA is divided between the two daughter cells
D. Mitosis is followed by the S phase, a stage of interphase
E. It is the only period when the cell synthesizes structural proteins

46. 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

47. Comparing spinal nerves and cranial nerves, one can state that:
A. They differ in number, there being 12 pairs of cranial nerves and 33 – 34 pairs of spinal nerves
B. Their apparent origin is the base of the encephalon (cranial nerves) and the spinal cord (spinal nerves)
C. Spinal nerves and some of the cranial nerves contain both sensory fibres and motor fibres
D. Some cranial nerves contain fibres belonging to the vegetative nervous system (the vagus nerve)
E. The spinal nerves innervate several structures such as the skin, skeletal muscles, joints, blood vessels, mucosae, sweat glands (with the exception of the head and the neck)

48. 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

49. Which of the following neurotransmitters belong to the class of catecholamines?
A. Acetylcholine, adrenaline and epinephrine
B. Adrenaline and noradrenaline
C. Dopamine, glycine and glutamate
D. Noradrenaline and dopamine
E. Serotonin and cholinesterase

50. Choose the correct statement(s) referring to cerebral hemispheres:
A. They contain more than 10 billion neurons
B. They represent the largest part of the encephalon
C. The shallow groove of the hemispheres is called fissure
D. Each hemisphere is divided into five lobes
E. Each hemisphere is divided into four lobes