

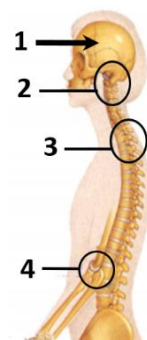


Note: choose the correct answer: - (2 marks for each right answer)

1-In the adjacent figure, which of the following joints

permit(s) limited movement?

- A- 2 and 3
- B- only 1
- C- only 3
- D- 3 and 4



2-Bone, blood and fat tissues are examples of three connective tissues whose cells are: -

- A- surrounded by a different type of intercellular substance.
- B- embedded in large amounts of intercellular substance.
- C- surrounded by the same type of intercellular substance.
- D- both (A and B) are correct.

3-All of the following about compact bone are correct **EXCEPT**: -

- A- it has a latticework structure.
- B- it contains a Haversian canal.
- C- it contains osteocytes.
- D- it is composed of cylinders.

4-Which of the following is found in the end of a person's long bone, when the person has usually reached his(her) full height?

- A-yellow bone marrow B- cartilage cells C-spongy bone D- both (A + C) are correct.

5-The cardiac muscle: -

- A- has origin and insertion points.
- B- arranged in opposing pairs.
- C- pumps blood through body parts.
- D- All of them are correct.

6-Which of the following about muscle structure is correct?

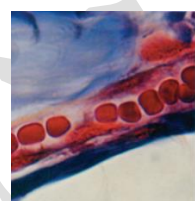
- A- each skeletal muscle cell is covered by a connective tissue.
- B- a group of fascicles are bound together by connective tissue to form a skeletal muscle.
- C- smooth muscle fibers are surrounded by connective tissue.
- D- All of them are correct.

7-Cardiovascular system: -

- A-is composed of, heart, blood vessels, and lymph nodes.
- B- one function of it is to return fluids that have collected in the tissues to the blood-stream
- C- is a part of the circulatory system.
- D-two liquids move through it.

8-The blood vessel shown in the adjacent figure represents a(an): -

- A-artery
- B- vein
- C-capillary
- D- lymph vessel



9-To prevent the occurrence of the condition erythroblastosis fetalis ,an Rh⁻ pregnant mother of an Rh⁺ child can be given antibodies(anti-Rh antibodies) to destroy:-

- A- any Rh⁺ cells that have entered the mother's blood stream from the fetus.
- B-all antibodies present in the mother's blood plasma. C-all antigens present on the mother's red blood cells.
- D- any Rh⁻ cells that have entered the fetus's blood stream from the mother.

10-When the level of carbon dioxide in the blood rises, which of the following stimulates the diaphragm to increase the breathing rate and depth?

- A-brain stem B- thalamus C-diencephalon D- hypothalamus

11-Which of the following about hemoglobin is correct?

- A- transport only oxygen gas in the process of respiration.
- B- each hemoglobin molecule contains a protein and four iron atoms.
- C-transport both oxygen and carbon dioxide gases in the process of respiration. D-both (B + C) are correct

12-Which of the following about blood returning from the systemic circulation to the heart **is incorrect**?

- A- is carried by inferior vena cava only.
- B- is a deoxygenated blood.
- C- is carried by both superior vena cava and inferior vena cava.
- D- enters the right atrium.

13-Oils : skin

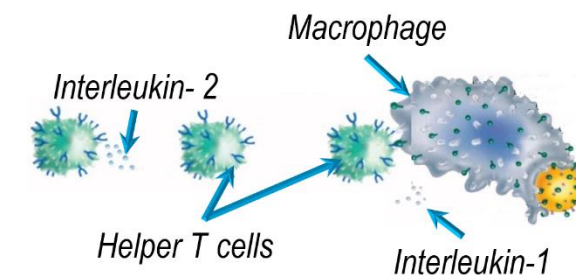
- A-mucus : skin
- B-sweat : mucus membranes
- C-lysozyme : skin
- D- waxes : mucus membranes

14-Which of the following release(s) histamine in the inflammatory response?

- A- some damaged skin cells through a cut on the skin
- B-natural killer cells
- C-macrophage
- D-All of them are correct

15-The adjacent figure shows some steps of immune response, these steps are necessary for: -

- A-the formation of memory cells for the first time.
- B- cell-mediated immune response
- C-temperature response
- D- both (A and B) are correct



16-Which of the following is considered as a component of the immune system?

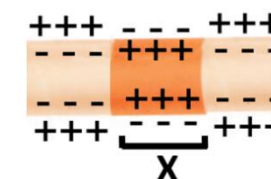
- A- bone marrow B-thymus gland C-lymph nodes D-All of them are correct

17-The similarity between HIV entry into macrophage and HIV entry into helper T cell is that: -

- A- HIV kills both cells.
- B-HIV replicates in both cells.
- C- HIV needs the same type of co-receptor.
- D-both (B and C) are correct.

18-In the adjacent figure, which of the following is correct about the region of the neuron axon indicated by the letter X?

- A-allows negatively charged proteins to move out of the neuron.
- B- allows sodium ions to move into the neuron.
- C-membrane potential reaches about +40 millivolts.
- D- both (B and C) are correct.



19-Schwann cells produce myelin around the axon of neurons that are:-

- A- part of the brain.
- B-part of the spinal cord.
- C-part of the brain and spinal cord.
- D-not part of the brain or spinal cord.

20-Which of the following is **incorrect** about nerve impulses?

- A-it travels in two different (opposite) directions in a synapse.
- B-it travels in two different (opposite) directions in the spinal nerves.
- C-its transmission speed in myelinated axons is greater than in unmyelinated axons.
- D-it travels along the axon of a neuron in only one direction.

21-Both cerebrum and cerebellum are: -

- A- characterized by having a highly folded surface.
- B- composed of only unmyelinated axons.
- C- composed of two hemispheres, each hemisphere is divided into four lobes.
- D- composed of two hemispheres that are connected by the corpus callosum.

22-Which of the following **is not a part** of the inner ear?

- A-Eustachian tube B-cochlea C-semicircular canals D-organ of Corti

23-Which of the following translate light energy into electrical signals that can be interpreted by the brain?

- A- rods B-cones C-hair cells D- both (A and B) are correct.

24-Which of the following is correct about dopamine?

- A- is a depressant that increases the activity of the central nervous system.
- B- is a neurotransmitter that is released by the nervous system.
- C- is a stimulant that decreases the activity of the central nervous system.
- D-All of them are correct.

25-The hormone secretion of which of the following endocrine glands is controlled by the pituitary gland?

- A- thymus gland B-pancreas C-pineal gland D- thyroid gland

26-Which of the following hormones stimulates the transfer of calcium ions from the bones to the blood?

- A- calcitonin B-parathyroid hormone C-melatonin D-both (A and B) are correct.

27-Thyroid hormones diffuse through the cell membrane of their target cells because they: -

- A- are made of a single modified amino acid. B-are a type of steroid hormones.
C-are fat soluble. D-are modified fatty acids.

28-The action of steroid hormones, differs from the action of amino acid-based hormones in that, in the action of steroid hormones the:-

- A- hormone binds to the protein receptor.
B- hormone-receptor complex is produced in the cytoplasm of the target cell.
C- cyclic AMP acts as a second messenger. D- hormone does not require target cell receptors.

29-Which of the following is a part of the male reproductive system but **not a part** of the female reproductive system?

- A-urethra B- cervix C-prostate gland D- both (A + C) are correct

30-In the male reproductive system, the epididymis is located between: -

- A- vas deferens and bulbourethral glands. B- seminiferous tubules in testis and vas deferens.
C- seminal vesicles and urinary bladder. D- vas deferens and urinary bladder.

31-Usually, in which part of the female reproductive system does implantation occur, the embryo grows and develops?

- A-ovary B- uterus C-fallopian tube D- vagina

32-In the follicular phase of the ovarian cycle, the elevated.....level acts as a.....

- A- estrogen, negative feedback mechanism B- estrogen, positive feedback mechanism
C- progesterone, negative feedback mechanism D- progesterone, positive feedback mechanism

33-During of which of the following pregnancy periods does lanugo disappear?

- A-early of the first trimester B-last half of the first trimester C-second trimester D-third trimester

34-What changes occur to the baby after the baby is born?

- A- the newborns baby's lungs expand B- the cardiopulmonary and renal circulation are completed
C- the excretory system become fully functional D- All of them are correct.

35-Which of the following is correct about Mendel's experiments to obtain P generation, F1 generation and F2 generation?

- A-all individuals of the P generation were homozygous.
B-all individuals of the F2 generation were heterozygous.
C- 25% from the individuals of the F2 generation were homozygous.
D- 25% from the individuals of the F1 generation were heterozygous.

36-A genotype that produces 50% of the gamete (AB) is: -

- A-homozygous for both characters. B-heterozygous for both characters.
C-heterozygous for a character and homozygous dominant for the other.
D-heterozygous for a character and recessive for the other

37-An individual heterozygous for a trait and an individual recessive for the same trait are crossed all offspring are likely to be: -

- A-all the same phenotype. B-all the same genotype
C-of two different phenotypes. D-of three different genotypes.

38-Which of the following is correct about codominance?

- A- the alleles are not dominant or recessive. B-the alleles blend in the phenotype.
C-the phenotype of a heterozygous individual is intermediate between the phenotypes of two pure parents.
D- in codominance the phenotype of the heterozygous and homozygous plants is the same.

39-Test cross performs to determine the genotype of: -

- A-  (seed texture) B-  (pod appearance) C-  (seed color) D-  (pod color)

40-A cross between two pea plants one with inflated pods and terminal flowers the other with inflated pods and axial flowers produced 640 plants,80 of them with constricted pods and terminal flowers, how many plants would be expected to have constricted pods and axial flowers?

- A- 80 B- 200 C- 240 D- 320

41-The results of some experiments on the pea plants showed that 6,022 times is trait round seeds and the trait wrinkled seeds is 2,001 times, which of the following represent(s) the probability of the dominant trait as a percentage ratio?

- A-0% B-25% C- 50% D-75%

42-In the process of DNA replication: -

- A- no error occurs because the process occurs with great accuracy.
B- errors occur and most of them are repaired but some errors cannot be repaired and cause a mutation.
C-errors occur only in the original strands. D- errors occur but all errors are repaired by DNA polymerase.

43-From his four experiments Griffith concluded that the heat killed virulent (S) bacterial cells released a hereditary factor inside the cells ofwhich led to the transfer of the ability to cause disease.

- A- heat killed mouse cells. B- live nonvirulent (R) bacterial cells.
C- live virulent (S) bacterial cells. D- heat killed nonvirulent (R) bacterial cells.

44-Watson and Crick constructed a model for the structure ofwhich suggested that it(they) composed of two chains that wrap around each other.

- A-DNA B-RNA C-DNA with RNA D-mRNA with tRNA

45-In the structure of a DNA molecule, hydrogen bonds connect: -

- A-purine with purine B-pyrimidine with pyrimidine C-purine and pyrimidine D-All of them are correct

46-In most organisms there are which specify

- A-20 codons ,64 different amino acids. B- 64 codons ,20 different amino acids.
C- 10 codons ,32 different amino acids. D- 32 codons ,10 different amino acids.

47-The process of RNA transcription differs from the process of DNA replication in that in the process of RNA transcription:-

- A- the two DNA strands are completely separated from each other
B- only a part of the two DNA strands is separated. C-both DNA strands serves as a template.
D- after the process is completed ,the separated DNA strands do not wrap around.

48-Which of the sequences in the adjacent table produces the longest polypeptide chain when translated?

No.	mRNA sequence that is translated
1	AUGUCCGCAUAAGGAAAU
2	AUGUUGACCUGAGCAGGCUCA
3	AUGCUCUAGAAGUGCUUCUUGACCGCA
4	AUGGGUCUAUAUUGAACG

- A- 1
B- 2
C- 3
D- 4

49-a cross between two pea plants produced this ratio (1 tall stem purple flowers: 1 tall stem white flowers: 1 short stem purple flowers: 1 short stem white flowers) which of the following could represent the phenotype of the two crossed plants?

- A-tall stem purple flowers × tall stem white flowers. B-tall stem white flowers × short stem purple flowers.
C- tall stem purple flowers × short stem white flowers. D- both (B + C) are correct.

50-Both start codon and stop codons: -

- A-do not have an anticodon. B- participate in the translation process.
C-are sequences of three nucleotides in DNA. D- do not specify amino acids.