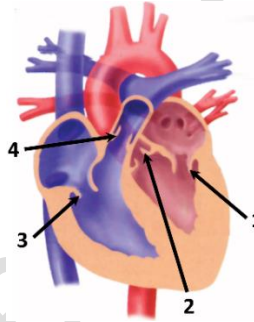




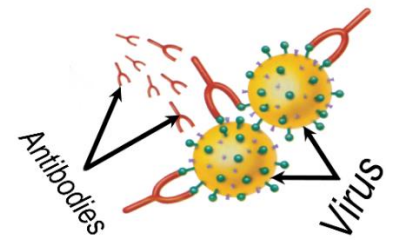
Note: choose the correct answer: (2 marks for each right answer)

- Which of the following does **not contain** cartilage in its structure?
A-the epiphyseal plate B-the outer ear C-the inner layer of the arteries D-the epiglottis
- The two body cavities which separated by the diaphragm are: -
A- thoracic cavity and spinal cavity B- cranial cavity and spinal cavity
C- thoracic cavity and abdominal cavity D- abdominal cavity and pelvic cavity
- All of the following happen in the muscular contraction process **EXCEPT**: -
A- a nerve impulse stimulates the muscle to contract
B- the actin filaments slide between the myosin filaments
C- the actin filaments' heads attach to points between the beds of the myosin filaments
D- the myosin heads bend inward, pulling the actin with them
- In the arm the flexor muscle differs from the extensor muscle in that the flexor muscle: -
A-has an origin point on the scapula B-moves bones by pulling them
C-when it is in a state of relaxation, the limb straightens D-its cells contain many nuclei
- The similarity between the axial skeleton and the appendicular skeleton is that both skeletons contain: -
A- red bone marrow B-yellow bone marrow C-a movable joint D-both (A and C) are correct
- Which of the following is a characteristic of the semimovable joints?
A-they securely connect the boney plates in the skull B-allow the body to bend and twist
C-allow to turn the head from side to side D-All of them are correct
- in rheumatoid arthritis: -
A-the joint cartilage becomes thinner and rougher B-the joints become inflamed, swollen, stiff and deformed
C-the immune system begins to attack body tissues D-both (B + C) are correct
- Which of the following is a function of the circulatory system?
A-helps maintain a constant body temperature B-transport nutrients, hormones, and gases
C-returning fluids that have collected in the tissues to the blood stream D-All of them are correct
- In the adjacent figure ,which of the following numbers point to the valves that prevent the oxygenated blood from flowing back in a wrong direction?
A- 2 and 3
B- 1 and 4
C- 1 and 2
D- 3 and 4
- In the pulmonary circulation thesends the blood to the lungs.
A- aorta B- pulmonary artery C-pulmonary vein D-superior vena cava
- Blood is composed of:-
(1-the plasma , 2-red blood cells , 3-white blood cells , 4-platelets)
A-only 1 , 2 ,3 B- only 2 , 3 , 4 C- 1 , 2 , 3 , 4 D-only 1 , 4
- If an individual's red blood cells carry on its surfaces an A antigen and a B antigen and **cannot** produce anti-Rh antibodies, this individual can give blood to an individual with type..... blood.
A- (B⁺) B- (A⁻) C- (AB⁺) D- (AB⁻)
- four hemoglobin molecules can carrymolecules of oxygen.
A- 2 B- 4 C- 8 D- 16
- All of the following are nonspecific defenses **EXCEPT**: -
A-stomach acids B- mucus C- cytokines D- waxes
- Which of the following is correct about interferon?
A-a protein released by cells infected with virus B-forms a ring shaped structure
C-punctures the membranes of infected cells D-All of them are correct



16-The event shown in the adjacent figure activates which of the following?:-

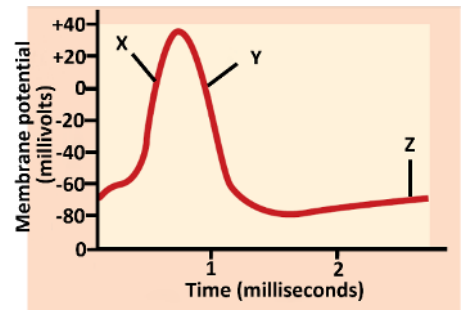
- Erbil
- cytotoxic T cells
 - macrophage
 - the complement system
 - B cells



- The cell-mediated immune response differs from the humoral immune response in that the cell-mediated immune response: - A-needs to recognize antigens B- more than one type of T cell is involved
C-needs to activate the helper T cell D- at first needs to engulf a pathogen by the macrophage
- HIV is transmitted by the transfer of body fluids containing.....to a healthy body.
A-HIV B-anti-HIV antibodies C- HIV-infected cells D-both (A and C) are correct
- The phase I (first) of HIV infection is similar to the phase II (second) of HIV infection in that in both phases: -
A- HIV-infected people feel well B- the HIV replicates
C- lymph glands become swollen D-Helper T cells cannot stimulate B cells and cytotoxic T cells

20-In the adjacent graph, the letter(s) that point(s) to the part of the graph through which the sodium ion channels open is(are): -

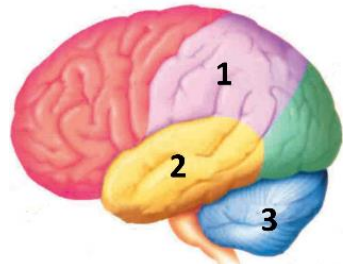
- only X
- X and Y
- only Y
- X and Z



21-In a synapse, when an action potential reaches the axon terminal of the presynaptic neuron, the vesicles fuse with the: - A- presynaptic membrane B- receptor proteins on the presynaptic membrane
C- postsynaptic membrane D- reuptake receptors on the postsynaptic membrane

22-referring to the adjacent figure that shows a cerebral hemisphere, the nerve impulses from the specialized mechanoreceptors are interpreted in the: -

- only 1
- 1 and 2
- 1, 2 and 3
- only 2



23-Interneurons: -

- are found in the spinal cord B-produce the myelin sheath around the axon of the nerve cell
C- relay information between other neurons D-both (A and C) are correct

24-In the process of hearing, which of the following causes movement of the bottom membrane in the middle chamber?
A-vibrations of fluid in the cochlea B-bending the hair cells against the membrane covering them
C-the movement of the calcium carbonate particles D- vibrations of fluid in the semicircular canals

25-Which of the following adjust the shape of the lens to bend the rays of the incoming light?
A-muscles in the pigmented iris B- muscles attached to the lens C-retina D- cornea

26-Drinking alcohol causes all of the following **EXCEPT**: -
A-dehydration B- decreasing in the body temperature C- addiction D- chronic bronchitis

27-Which of the following is a psychoactive drug?
A-acetylcholine B- nicotine C- tars D- dopamine

28-The hypothalamus responds to: -
A-blood concentrations of circulating hormones B- the signals coming from other brain regions
C-by issuing instructions in the form of hormones to the pituitary gland D- All of them are correct

29-Each adrenal gland: - A-has medulla and cortex , both of them function as separate endocrine glands
B- secretion of its hormones is controlled only by the nervous system C-secretes only steroid hormones
D- secretion of its hormones is regulated only by hormones in the anterior pituitary

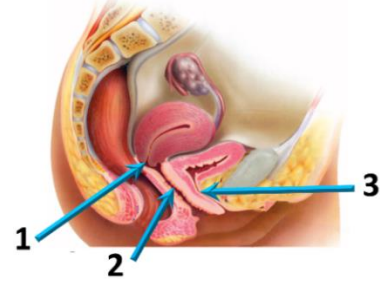
30-In the mechanism of the action of amino acid-based hormones, which of the following activates an enzyme that converts ATP to cyclic AMP?

- A- the receptor protein for the hormone B- hormone-receptor complex
C-first messenger D-second messenger

31-Which of the following is considered as a chemical messenger and **is not** secreted by the nervous system? A-epinephrine B- acetaminophen C- endorphins D- enkephalins

32-Referring to the adjacent figure ,which shows the structure of the female reproductive system, choose the correct answer from the following:-

- A- 1 , 2 and 3 are structures of this system
B- 1 and 2 are structures of this system
C- 1 and 3 are structures of this system
D-only 3 is a structure of this system



33-The testes develop withinbefore a male is born.

- A-the abdominal cavity B-an external sac C-the pelvic cavity D-an external sac in the abdominal cavity

34-In the male reproductive system, luteinizing hormone binds to receptors on the:-

- A-seminiferous tubules in both testis B- cells located between the seminiferous tubules in both testes
C-epididymis D-three exocrine glands of the male reproductive system

35-In the luteal phase of the ovarian cycle , increased levels of both.....acts as a.....

- A-estrogen and progesterone , negative feedback mechanism
B-follicle stimulating hormone and luteinizing hormone , negative feedback mechanism
C-follicle stimulating hormone and luteinizing hormone , positive feedback mechanism
D-estrogen and progesterone , positive feedback mechanism

36-The embryo develops from the mass of cells on the: -

- A-outer surface of the blastocyst B- outer surface of the morula
C- inner surface of the blastocyst D- inner surface of the morula

37-Which of the following is correct about umbilical cord? A-it attaches the fetus to the placenta

- B-begins to secrete a hormone called human chorionic gonadotropin early in the second week after fertilization
C-materials such as nutrients and wastes are exchanged across the umbilical cord membrane
D-All of them are correct

38-Which of the following **is incorrect** about incomplete dominance?

- A-the probable phenotypic ratio of a cross between a pure individual and a heterozygous individual is 3 : 1
B-three different phenotypes result from a cross between two heterozygous individuals
C-the phenotype of a heterozygous individual is intermediate between the phenotypes of the parents
D- the probable genotypic ratio of a cross between two heterozygous individuals is 1 : 2 : 1

39-A genotype that produces 50% of the gamete (ab) is: -

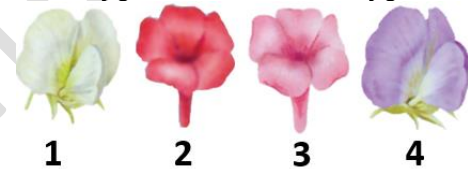
- A-heterozygous for a character and recessive for the other B-heterozygous for both characters
C-heterozygous for a character and homozygous dominant for the other D-homozygous for both characters

40-In a monohybrid cross between two heterozygous individuals resulted in 300 individuals, its expected that the number of pure and heterozygous individuals will be as follows:-

- A-150 homozygous and 150 heterozygous B-225 homozygous and 75 heterozygous
C-200 homozygous and 100 heterozygous D-300 homozygous and 0 heterozygous

41-Based on the adjacent figure, test cross is performed to determine the genotype for which of the following traits?

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



42-The law of independent assortment is observed only for genes: -

- A- have two dominant alleles B- have two recessive alleles
C- located on separate chromosomes D- located on the same chromosomes

43-Which of the following pairs represent pyrimidines?

- A-cytosine - thymine B- guanine - cytosine C- adenine - guanine D- adenine - thymine

44-Based on the adjacent table, in which of the Oswald Avery and his colleagues the mice survived?

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

Experiment 1	Inject mouse with a mixture of (heat-killed S cells + protease enzyme) with live R cells
Experiment 2	Inject mouse with a mixture of (heat-killed S cells + RNase enzyme) with live R cells
Experiment 3	Inject mouse with a mixture of (heat-killed S cells + DNase enzyme) with live R cells

45-The ribosomal RNA:-

- A- transfers amino acids to the ribosome to make a protein.
B-carries the instructions from a gene to make a protein. C-is part of the structure of ribosomes
D-contains the nitrogenous base thymine.

46-Which of the following **is incorrect** about the process of the DNA replication?

- A-only a part of the two strands of DNA unwinds
B-helicases move along the DNA molecule breaking the hydrogen bonds between the complementary nitrogenous bases
C- each original strand serves as a template to make a new complementary strand
D- each of the new DNA molecules keeps one of the two original DNA strands

47-The correct sequence of organizing genetic material from the largest part to the smallest part is:-

- A-Genome → Chromosome → Nucleotide → Gene B-Genome → Chromosome → Gene → Nucleotide
C-Chromosome → Genome → Nucleotide → Gene D-Chromosome → Gene → Genome → Nucleotide

48-if you know that the complementary strand of this strand (TATCAATCTGTTTCAT) has become the template for the transcription of mRNA ,Which polypeptides of the following is produced?-

- A- Histidine , Valine , Tyrosine , Serine , Glutamine
B- Histidine , Valine , Tyrosine , Glutamine , Serine
C- Tyrosine , Glutamine , Histidine , Valine , Serine
D- Tyrosine , Glutamine , Serine , Valine , Histidine

Amino Acid	Serine	Histidine	Tyrosine	Valine	Glutamine
Anticodon	AGA	GUA	AUA	CAA	GUU

49-Which of the following is participate in RNA transcription?

- A-a promoter B-termination signal C-RNA polymerase D-All of them are correct

50-A cross between two pea plants produced the following offspring (120 that have axial flowers and green pods ,120 with terminal flowers and green pods, 40 that have axial flowers and yellow pods, 40 with terminal flowers and yellow pods) which of the following represents the phenotype of the both crossed plants?

- A- have axial flowers and yellow pods × have terminal flowers and green pods
B- have axial flowers and green pods × have terminal flowers and green pods
C- have axial flowers and yellow pods × have terminal flowers and yellow pods
D- have axial flowers and green pods × have terminal flowers and yellow pods