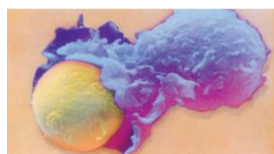
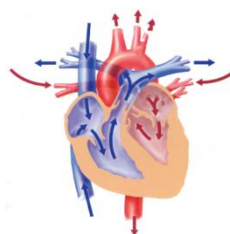


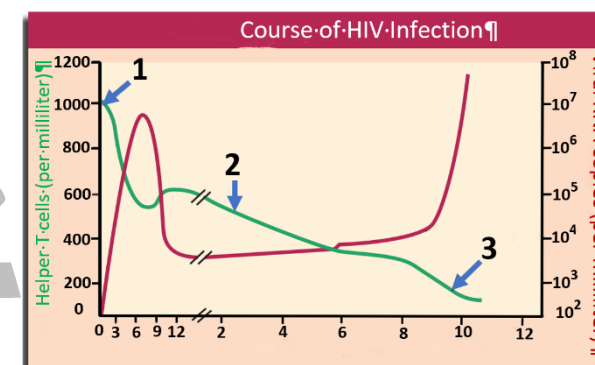
Note: choose the correct answer: (2 marks for each right answer)

- 1-Which of the following is **NOT** an example of epithelial tissue?  
A-the tissue that lines blood vessels B- the tissue that lines the trachea  
C- the outer layer of veins D- the outer layer of skin
- 2-The bones that develop directly into hard bone: - A-form fixed joints B- contain yellow bone marrow  
C-are a part of the appendicular skeleton D- All of them are incorrect
- 3-Which of the following bones contributes with one of its endings in the formation of the ball joint?  
A-humerus B-femur C-radius D-both (A + B) are correct
- 4-Which of the following muscles is(are) found in the adjacent figure components?  
A-only cardiac muscle  
B-cardiac muscle and smooth muscle  
C-only smooth muscle  
D-skeletal muscle, smooth muscle and cardiac muscle
- 5-All of the following about muscle are true **EXCEPT**: -  
A- the actin and myosin filaments are found only in the structure of skeletal muscle  
B- the sarcomere is the functional unit of skeletal muscle contraction  
C-smooth muscle fibers are surrounded by connective tissue  
D-in a relaxed muscle the actin and myosin filaments overlap
- 6-Which of the following about cardiac valves is true? A-are flaps of tissue that open in only one direction  
B-they prevent mixing of blood in the right side of heart with blood in the left side of the heart  
C-they prevent oxygenated blood from flowing backward into ventricles D- All of them are correct
- 7-the similarity between pulmonary circulation and systemic circulation is that: -  
A-in both of them deoxygenated blood moves away from the heart and oxygenated blood moves to the heart  
B-in both of them deoxygenated blood moves to the heart and oxygenated blood moves away from the heart  
C- in both of them gas exchange occurs D- both of them participate in returning lymph to the heart
- 8-In normal cases which of the following is(are) NOT found in the plasma?  
A-antibodies B-fibrin C-albumin D-both (A + B) are correct
- 9-If an individual blood type has only anti-A antibodies in the plasma and cannot produce anti-Rh antibodies,  
that individual can **NOT** get blood from an individual with type..... blood.  
A-B<sup>+</sup> B-A<sup>-</sup> C-O<sup>+</sup> D-O<sup>-</sup>
- 10-In which direction the blood moves through the phase that is represented by T on an electrocardiogram?  
A-from veins to atria B-from ventricles to atria C-from ventricles to arteries D-from arteries to ventricles
- 11-In which of the following processes, carbonic acid (H<sub>2</sub>CO<sub>3</sub>) is formed?  
A-in the transport of CO<sub>2</sub> when blood reaches the lungs B-in the transport of CO<sub>2</sub> when blood reaches tissues  
C-in the transport of O<sub>2</sub> when oxygen binds with hemoglobin in the lungs D-both (A + B) are correct
- 12-Which of the following is(are) (a) characteristic(s) of the cell shown in the adjacent figure in blue?  
A-secretes antibodies B-engulfs invading microorganisms  
C-is a type of lymphocytes D- All of them are correct
- 13-Thymosin binds to the receptors on the: - A- B cells B-T cells C-macrophages D-osteocytes
- 14-When a person is subjected to a laboratory test, it was found that the level of interferon was high, depending  
on the result of the test, it is suspected that this person may be infected with a disease which is caused by a:-  
A-fungus B-virus C-bacteria D- protist
- 15-Which of the following is an example of the type of immunity that requires(needs) recognition of a specific  
type of antigen? A-the cell-mediated immune response B-the inflammatory response  
C-temperature response D-All of them are correct
- 16-Which of the following are considered as chemical messengers?  
A-neurotransmitters B-neuropeptides C-prostaglandins D-All of them are correct



- 17-When the body injected with a vaccine, the body produces: -  
A-a primary immune response to the antigens in the vaccine and forms memory cells  
B-a primary immune response to the antigens in the vaccine and does not form any memory cells  
C-a secondary immune response to the antigens in the vaccine and forms memory cells  
D-a secondary immune response to the antigens in the vaccine and does not form any memory cells

18-According to the adjacent graph, in which of the following the result of anti- HIV antibodies might **NOT** be positive?

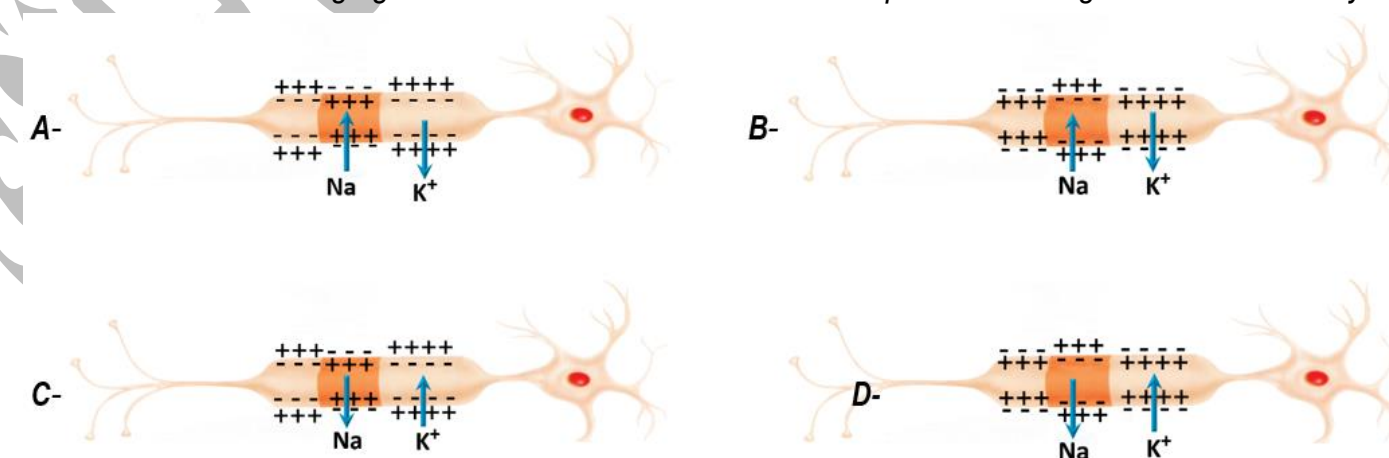


- A-only 1  
B-only 3  
C-1 and 2  
D-1 and 3

19-Which of the following is true about ion channels?

- A-it can locate on the axon B-it can locate on the dendrites  
C-each type of channel allows only specific ions to pass D-All of them are correct

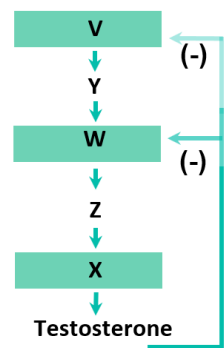
20-Which of the following figures shows the conduction of action potential through the axon correctly?



- 21-Cerebrum : brain  
A-thalamus : hypothalamus B- midbrain : brain stem  
C-diencephalon : midbrain D- diencephalon : thalamus
- 22-Which of the following is NOT a part of the path taken by sound waves(vibrations)?  
A-auditory canal B-small bones of the middle ear C-Eustachian tube D-oval window
- 23-In vision light passes through: - A-cornea B-pupil C-lens D-All of them are correct
- 24-All of the following are the smoking effects on the pregnant women smokers **EXCEPT**: -  
A-their babies tend to have lower birth weights than babies of nonsmokers  
B-their babies have physical, mental, behavioral, and learning disabilities  
C-their babies are twice as likely to die in the first few months of life  
D-pregnant women who smoke are twice as likely as non-smoking mothers to suffer miscarriages
- 25-The hormone-receptor complex of which of the following hormones binds to DNA, and activates  
transcription of mRNA? A- epinephrine B- thyroxine C-noradrenaline D- glucagon
- 26-Which of the following hormones helps raise blood volume by stimulating salt and water retention by the  
kidneys? A-triiodothyronine B-calcitonin C-aldosterone D-secretin
- 27-Insulin lowers the blood sugar level by stimulating body cells especially muscles to: -  
A-store glucose B-break down excess glucose and excrete it through the urine  
C-use glucose for energy D- both (A + C) are correct
- 28-Which of the following is(are) expelled out of the mother's body shortly after the baby is born?  
A-placenta B-yolk sac C-uterus D- both (A + C) are correct
- 29-The fetal membranes do all of the following EXCEPT: -  
A-cushion the embryo from injury and keep it moist B-participate in the formation of the placenta  
C-secrete prostaglandin D-form the primary germ layers

30-According to the adjacent diagram choose the correct answer from the following table: -

	V	W	X	Y	Z
A	Hypothalamus	Pituitary gland	Testes	Luteinizing hormone	Releasing hormone
B	Pituitary gland	Hypothalamus	Ovaries	Releasing hormone	follicle-stimulating hormone
C	Hypothalamus	Pituitary gland	Testes	Releasing hormone	Luteinizing hormone
D	Pituitary gland	Hypothalamus	Ovaries	follicle-stimulating hormone	Releasing hormone



31-The fluids in Semen do all of the following as the sperm move through the female reproductive system EXCEPT: -

- A- protect the sperm  
 B- nourish the sperm  
 C- help the sperm penetrate the protective layers that surround an egg cell  
 D- neutralize the acids

32-After leaving the male reproductive system and reaching the female reproductive system the sperm take the following path: -

- A- vagina → cervix → uterus → fallopian tube  
 B- vagina → uterus → cervix → fallopian tube  
 C- fallopian tube → cervix → uterus → vagina  
 D- fallopian tube → uterus → cervix → vagina

33-Which of the following can act as an endocrine gland: -

- A-follicle cells  
 B-placenta  
 C-ovaries  
 D- All of them are correct

34-According to the adjacent figure, which of the following is true about the embryo?

- A-the age of the embryo is four weeks  
 B-the fingers begins to form  
 C-the embryo is only about 5 cm long  
 D-the embryo begins to move



35-Mendel obtained the second filial(F2) in his experiments by: -

- A-self-pollination between two parents that have two contrasting traits  
 B-cross-pollinating the pea plants for several generations  
 C-self-pollination between two parents that have the same traits  
 D-cross-pollination between individuals of the first generation

36-Which pair of the following alleles produce(s) three different phenotypes?

- A- I<sup>A</sup> and I<sup>B</sup>  
 B- I<sup>N</sup> and I<sup>M</sup>  
 C- I<sup>A</sup> and i  
 D- both (A + B) are correct

37- According to the information provided by the following table that shows several monohybrid crosses, between pea plants that have axial flowers and pea plants that have terminal flowers, which cross result in this table is NOT true?

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

Cross	Parental phenotype	When the parental genotype for axial flowers is	Result
1	Axial flowers × terminal flowers	homozygous	100% axial flowers
2	Axial flowers × axial flowers	heterozygous	100% axial flowers
3	Axial flowers × axial flowers	heterozygous	75%axial , 25%terminal
4	Axial flowers × terminal flowers	homozygous	50%axial , 50%terminal

38-which of the following traits is expressed (appeared) only in homozygous condition?

- A-wavy hair in Caucasians  
 B-no tail in cats  
 C-pink flowers in four o'clocks  
 D-short tail in cats

39-A scientist crossed a round, green seeds pea plant with unknown pea plant for both characteristics, he noticed that there are four different phenotypes appeared in equal ratios, which of the following represents the phenotype for both characteristics of the unknown plant?

- A-round, green seeds  
 B-round, yellow seeds  
 C-wrinkled, yellow seeds  
 D-wrinkled, green seeds

40-GCA UCA CCU : CGU AGU GGA

- A- GTC TAA GGA : CAG AUU CCU  
 B- UAC AUC CGU :ATG TAG GCA  
 C- CGA AUA CGU :GCU UAU GCA  
 D- TAC TTA GCA :ATG AAT CGT

41-During the transcription process, the enzyme RNA polymerase: -

- A-uses a specific part of both strand of DNA as a template  
 B-it starts reading DNA nucleotides from the start codon until it reaches one of the stop codons  
 C-uses a specific part of one of the DNA strands as a template  
 D- both (B + C) are correct

42-The farther apart two genes are located on a chromosome: -

- A-the less likely a cross-over will occur  
 B-the greater the percentage of F2 offspring showing recombinant traits for those two genes  
 C-the more likely to be inherited together  
 D- All of them are incorrect

43-Male gametes usually differ one from another in the: -  
 A-number of the sex chromosomes  
 B- type of the sex chromosomes  
 C- size of the sex chromosomes  
 D- both (B + C) are correct

44-In the translation process which of the following occurs during the termination step?

- A-the ribosome moves away from the mRNA  
 B- the components of translation come apart  
 C- the process reaches the codon for which there is no tRNA that has a complementary anticodon  
 D- the translation machinery is now free to translate the same or another mRNA

45-All of the following are true about DNA replication EXCEPT: -

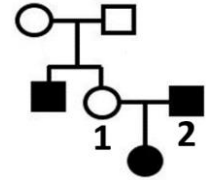
- A-covalent bonds form between the adjacent nucleotides on the newly forming strand  
 B-covalent bonds form between the ribose sugar of one nucleotide and the phosphate group of the next nucleotide  
 C-each strand serves as a template to make a new complementary strand  
 D-each of the new DNA molecules keeps (conserves)one of the two original strands

46-A scientist crossed a gray-bodied, long-winged fruit fly (heterozygous for both characteristics) with a black-bodied, short-winged fruit fly and he obtained 1600 individuals, which of the following results is expected to be produced from this cross. Assume that both dominant alleles G, L are on the same chromosome and crossing-over does not occur.

- A-800 gray-bodied, long-winged fruit fly (Gg Ll)  
 B-800 black-bodied, short-winged fruit fly(gg ll)  
 C-400 black-bodied, short-winged fruit fly(gg ll)  
 D- both (A + B) are correct

47-According to the adjacent pedigree that shows the inheritance of color blindness in a family, if the couple (husband and wife) 1, 2 have another girl what is the probability that this girl (new born) will be healthy (neither affected with this disorder nor a carrier of it)?

- A-0%  
 B-25%  
 C-50%  
 D-100%



48-The adjacent figures represent three pieces of DNA that were cut by: -

- A- the same restriction enzyme  
 B-two different restriction enzymes  
 C-a restriction enzyme which cuts each sequence between the G and A nucleotides  
 D-both (A + C) are correct



49-According to the adjacent table, which of the following mutations that occurred in this piece of DNA (G A G T T C A C G A A G A T G) make all amino acids downstream change? Reading direction →

- A- G A G T G C A C G A A G A T G  
 B- G A G G T C A C G A A G A T G  
 C- G A G G T T C A C G A A G A T G  
 D- G A G T T T A C G A A G A T G

First base	Second base			Third base
	U	C	A	
U	UUU } Phenylalanine	UCU } Serine	UAU } Tyrosine	UGU } Cysteine
	UUC } alanine	UCC } Serine	UAC } Tyrosine	UGC } Cysteine
	UUA } Leucine	UCA } Serine	UAA } Stop	UGA } Stop
	UUG } Leucine	UCG } Serine	UAG } Stop	UGG } Tryptophan
C	CUU } Leucine	CCU } Proline	CAU } Histidine	CGU } Arginine
	CUC } Leucine	CCC } Proline	CAC } Histidine	CGC } Arginine
	CUA } Leucine	CCA } Proline	CAA } Glutamine	CGA } Arginine
	CUG } Leucine	CCG } Proline	CAG } Glutamine	CGG } Arginine
A	AUU } Isoleucine	ACU } Threonine	AAU } Asparagine	AGU } Serine
	AUC } Isoleucine	ACC } Threonine	AAU } Asparagine	AGC } Serine
	AUA } Methionine	ACA } Threonine	AAA } Lysine	AGA } Arginine
	AUG } Methionine	ACG } Threonine	AAG } Lysine	AGG } Arginine
G	GUU } Valine	GCU } Alanine	GAU } Aspartic acid	GGU } Glycine
	GUC } Valine	GCC } Alanine	GAC } Aspartic acid	GGC } Glycine
	GUA } Valine	GCA } Alanine	GAA } Glutamic acid	GGA } Glycine
	GUG } Valine	GCG } Alanine	GAG } Glutamic acid	GGG } Glycine

50-All of the following are true about purines and pyrimidines EXCEPT: -

- A-the percentage of adenine equals the percentage of thymine in both DNA and RNA.  
 B-the ratio of purines to pyrimidines in the DNA double helix is about 1: 1.  
 C-both of them are ring structures of carbon and nitrogen atoms.  
 D-both of them are found in DNA and RNA nucleic acids.