

**Mock Exam No. (9) for the General Secondary Certificate Examination**

**Biology**

Choose the correct answer

**Questions (1-32) One point for each question:**

1- All of the following are true about the vertebra at which the fifth pair of ribs articulates Except -----

A- Larger than the seventh vertebra of the spine.

B- Smaller than the first lumbar vertebra.

C- No ligaments are attached to it.

D- It has a transverse protrusion.

2- The lower end of the femur is connected to the inner bone of the lower leg by a number of .....ligaments (ligaments)

A- 1

B- 2

C- 3

D- 4

3- You have two statements, the first is (the upper part of the sternum heals quickly because it gets food and oxygen directly) and the second is (the lower part of the sternum is difficult to heal because it gets food and oxygen indirectly).

Which of the following applies to both of them?

A- Both statements are correct.

B- Both statements are incorrect.

C- The first statement is correct and the second is incorrect.

D- The first statement is incorrect and the second is correct.

4- The ratio between the number of vertebral bones in a newborn and their number in an adult man is -----

A- Less than one.

B- Equal to one.

C- Greater than one.

D- There is no relationship.

5- You have two statements, the first is (All hormones of the glandular part of the pituitary gland are related to the appearance of secondary sexual characteristics) and the second is (Both FSH and LH control the appearance of secondary sexual characteristics in males and females).

Which of the following applies to each of them?

A- Both statements are correct.

B- Both statements are incorrect.

C- The first statement is correct and the second is incorrect.

D- The first statement is incorrect and the second is correct.

6- The mammary glands are affected by many hormones.

The correct order of the effect of these hormones on them is as follows -----

A- Progesterone - Estrogen - Oxytocin - Prolactin.

B- Estrogen - Progesterone - Prolactin - Oxytocin.

C- Progesterone - Estrogen - Prolactin - Oxytocin.

D- Estrogen - Progesterone - Oxytocin - Prolactin.

7- During long hours of fasting, hormonal changes occur to maintain the body's internal balance.

Which of the following expresses the correct change in hormones?

A- Increase in (glucagon and ADH).

B- Increase in (insulin and ADH).

C- Decrease in (glucagon and increase in (ADH).

D- Increase in (glucagon and decrease in (ADH).

8- Which of the following flowers produces the least genetic variation through sexual reproduction?



A-1

B-2

C-3

D-4

9- After double fertilization of the marrow flower, all the floral whorls and leaves will wither and fall except -----

A - Corolla

B – Androecium

C - Corolla and stamens

D - Corolla and ovary

10- Female gametes are produced in flowering plants by .....divisions

A- Meiotic nuclear division followed by mitotic cellular division.

B- Mitotic nuclear division followed by meiotic cellular division.

C- Meiotic cellular division followed by mitotic nuclear division.

D- Mitotic cellular division followed by meiotic nuclear division.

11- Which of the following stages in human embryonic development includes the lowest rate of mitotic division?



(4)



(3)



(2)



(1)

A-1

B-2

C-3

D-4

12- An egg of a female mouse (A) underwent the process of re-nucleation (cloning) by using an embryonic cell nucleus of a mouse (B). The resulting blastocyst was implanted in the uterus of a female (C). Therefore, the mitochondria in the resulting mouse cells will belong to the female lettered ----

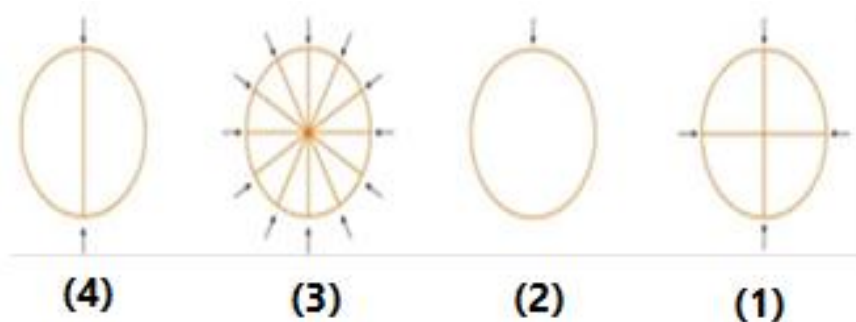
A-A

B-B

C-C

D- A and B

13- In the following figure, the circle represents a full year and the arrow represents the beginning of the breeding cycle. Which of the following diagrams represents the breeding cycle in the lion and the mouse, respectively?



A- 1 and 3

B- 2 and 4

C- 3 and 2

D- 2 and 3

14- If the number of lymphocytes in a sample of a person's blood = 20 X. Then the possible number of T cells in this sample is -----

A- 2 X.

B- 4 X.

C- 8 X.

D- 16 X.

15- Which mechanism of action of antibodies against pathogens cannot work without complement?

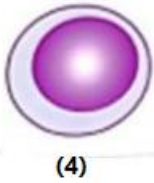
A- Neutralization.

B- Precipitation.

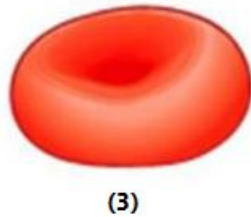
C- Agglutination.

D- The anti-toxin.

16- Which of the following cells does not have an immune function?



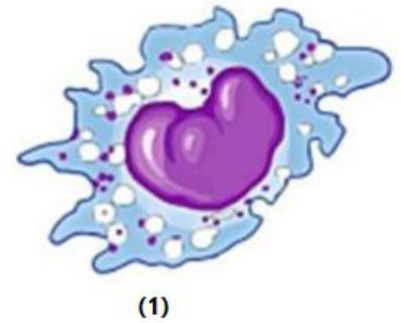
A-1



B-2



C-3



D-4

17- Which of the following defence mechanisms is used by the bean plant to prevent the spread of an attacking fungus after failing to eliminate it?

A- Deposition of gums.

B- Formation of tyloses.

C- Getting rid of the infected cells.

D- Increasing the thickness of the epidermis.

18- A part of a DNA molecule consists of (3 turns) and contains (16) purine bases that pair with the complementary pyrimidine with three hydrogen bonds.

How many thymine bases are in this molecule?

A- 16

B- 30

C- 28

D- 14

19- Which of the following types of mutations plays a role in the occurrence of evolution?

A- Induced - chromosomal - somatic.

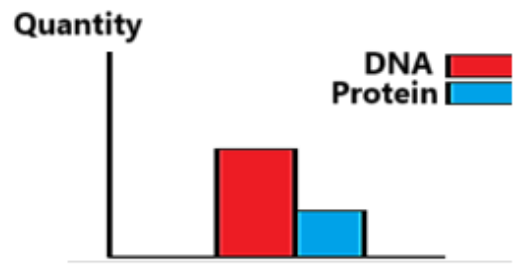
B- Induced - genetic - somatic.

C- Spontaneous - chromosomal - somatic.

D- Spontaneous - genetic – gamete.

20- If the opposite graph shows the ratio between the amount of DNA and the amount of protein in the cells of the organism (X).

What can be concluded?



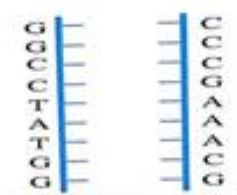
A- The organism is a prokaryote.

B- More than half of the DNA is non-coding.

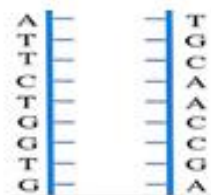
C- The amount of protein depends on the amount of DNA.

D- The coding DNA represents about 70%.

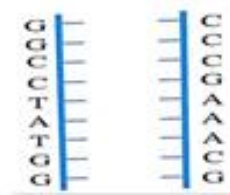
21- Each of the following represents hybrid DNA of different species. Which of them represents the least evolutionary relationship?



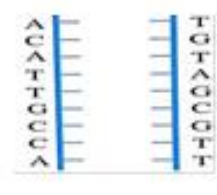
(4)



(3)



(2)



(1)

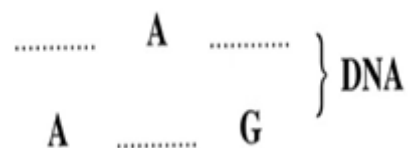
A-1

B-2

C-3

D-4

22- The opposite figure represents the beginning of a gene.



Which of the following represents the correct anticodon in the opposite figure?

A- AUG

B- UAC

C- UUG

D- AUC

23- Which of the following causes the greatest change in the resulting protein if inserted directly after the start codon?

A- A

B- AAA

C- ACG

D- UCC

24 - Which branch of geology is directly related to reclaiming land for agricultural purposes.

a) Engineering geology

b) Paleontology

c) Hydrogeology

d) Geophysics

25 - Which of the following is the hardest silicate mineral?

a) Quartz

b) Malachite

c) Diamond

d) Orthoclase

26 - Which of the following is true about the crystal system in which the value of the two angles ( $\alpha$  and  $\gamma$ ) are different?

a) It has no symmetrical planes.

b) It has one symmetrical plane.

c) It has horizontal and vertical symmetrical planes.

d) It has inclined symmetrical planes.

27- If the samples are equal in size, which of the following igneous structures contains the least number of crystals?

a) Sills of dolerite

b) Basaltic mountains

c) Andesitic pillows

d) Diorite Batholith

28- When studying the feldspar that makes up basalt rock. Which of the following elements is the most present in it?

a) Iron

b) Sodium

c) Calcium

d) Potassium

29- Which of the following minerals is composed of two elements and its luster differs from that of metals?

a) Galena

b) Quartz

c) Calcite

d) Malachite

30- The temperature at which the crystallization of the rock containing the following minerals (orthoclase, quartz, amphibole, and muscovite) occurred is ----- degrees Celsius

- a) 1000                      b) 750                      c) 900                      d) 1100

31- Which of the following describes the materials used by the paleolithic in drawing on walls?

- a) They are considered as minerals because they are manufactured.  
b) They are not considered as minerals because they are liquid.  
c) They are considered as minerals because they are crystallized.  
d) They are considered as minerals because man relies on them.

32) You have three pieces of gold, diamond, and magnetite, then a magnet is approached to them, which of them will be attracted to it?

- a - Diamond  
b - Magnetite  
c - Gold  
d – None of them.

Questions from (33 to 44) 2 marks for each question

33- The opposite figure shows three cross-sections in a myofibril.

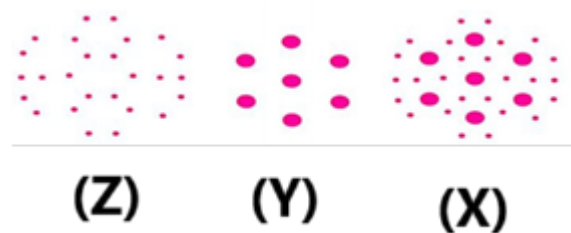
Which of these sections passes through the dark area?

A- X.

B- Y.

C- Z.

D- Y and Z .





34- Which of the following affects the ability of bone cells to divide and also to bear heavy weights?

A- The posterior lobe of the pituitary gland and parathyroid glands.

B- The anterior lobe of the pituitary gland and adrenal cortex.

C- The anterior lobe of the pituitary gland and thyroid gland.

D- The posterior lobe of the pituitary gland and thyroid gland.

35- After double fertilization, the fertilized egg turns into a seed.

Which of the following seeds will have only diploid cells after maturation?

A- Beans.

B- Wheat.

C- Castor.

D- Corn.

36- which of the following organisms will possibly have the highest biological cost (energy consumed) during its reproduction?

A- Bony fish

B- Cartilaginous fish

C- Amphibians

D- Mammals

37- A woman gave birth to 4 twins (Mona, Hoda, Majed and Ali).

What is the minimum number of eggs required to give birth to these twins?

A- 4

B- 3

C- 2

D- 1

38- The opposite figure represents plant cells before and after infection.

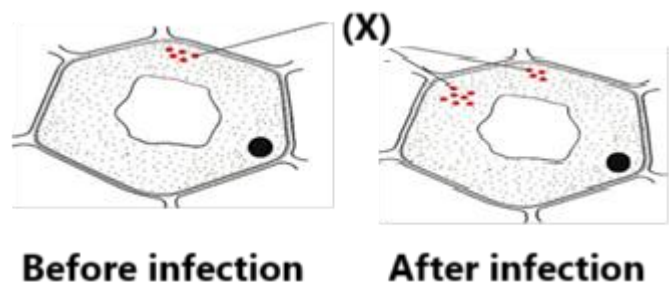
Which of the following does not represent the substance lettered (X)?

A- Canavanine.

B- Cephalosporin.

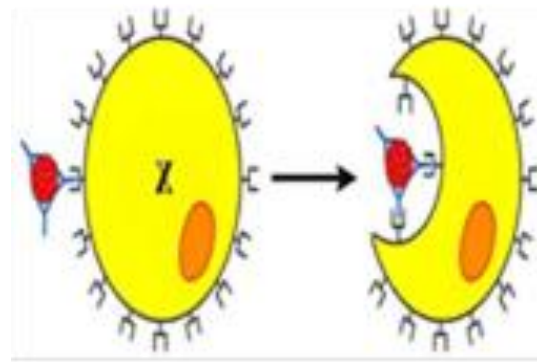
C- Glycosides.

D- Detoxifying enzymes.



39- The opposite figure illustrates one of the mechanisms of action of antibodies. Cells (X) represent-----

- A- Helper T cell
- B- A cytotoxic T cell
- C- A plasma cell
- B- A macrophage.



40- In one of the experiments (X, Y, Z, and L) 4 different organisms (the ribosome was isolated from (X), tRNA from (Y), mRNA from (Z), and amino acids from (L), so the resulting protein is specific to the organism -----

- A-X.
- B- Y.
- C- Z.
- D- L

41- Which of the following organisms does not have nucleosomes in its cells?

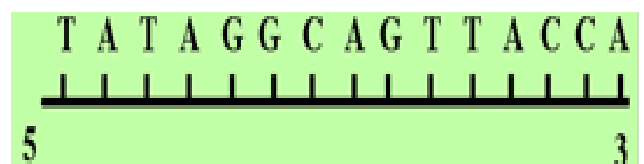
- A- Bacteria.
- B- Plasmodium.
- C- Amoeba.
- D- Paramecium.

42- If the mRNA for building insulin is introduced into the alpha cells of the pancreas, these cells will be able to produce -----

- A- Insulin only.
- B- Glucagon only.
- C- Insulin and glucagon
- D- The cell stops producing protein

43- If the opposite figure represents a sequence of nucleotides in a DNA strand. This part represents -----

- A- A complete gene.
- B- The beginning of a gene.
- C- The middle of a gene.
- D) The end of a gene.



**44 – You have two statements, the 1<sup>st</sup> is (All rocks are made up of several minerals) and the 2<sup>nd</sup> is (All minerals are considered rocks). Which of the following is applied to the two statements?**

- a) The first statement is correct and the second statement is incorrect.**
- b) Both statements are correct.**
- c) Both statements are incorrect.**
- d) The first statement is incorrect and the second statement is correct.**

**Essay Questions (2 points for each questions)**

**45- Identify an example of each of the following,**

**A- Male gamete that develops by mitosis.**

**- Male gamete of ferns, male gamete of honeybee drone**

**B- Organisms that produce gametes by meiosis followed by mitosis.**

**- Flowering plants**

**46- From the following, identify the type of rock and identify one of its uses?**

**A- Metamorphic rock formed from a rock composed of one of the carbonate minerals.**

**- Marble - used as an ornamental stone (gemstone).**

**B- Metamorphic rock formed under pressure and temperature less than 200 degrees Celsius.**

**- Slate - used in construction.**

**End of questions**