Mock Biology Exam 1

December 2024

Questions with one mark

Trial Exam No1

1. Which of the following is NOT a method of support in plants?

- a. Cell wall deposition
- b. Turgor pressure
- c. Cork formation
- d. Leaf wilting

2. What is the main role of collenchyma cells in plant ?

- a. Photosynthesis
- b. Storage of nutrients
- c. Flexible support
- d. Water transport

3. What type of movement involves the continuous internal activity within cells?

a. Peristalsis

b. Locomotion

c. Cytoplasmic streaming

d. Skeletal movement

4. **In which of the following group of animals would you find an external skeleton?**

a. Mammals

b. Arthropods

c. Bony fish

d. Cartilaginous fish

5. **The gland which stimulates the mammary gland to secret milk after delivery is:**

a) Ovary

c) Parathyroid.

b) Adrenal.

d) Pituitary.

6. **Which of the following is NOT a function of insulin?**

a. Stimulating glucose oxidation

b. Transporting fructose across cell membranes

c. Stimulating conversion of glucose to glycogen

d. Reducing blood glucose levels

7. **Which hormone is secreted by the Graafian follicle of the ovary and helps in the development of female secondary sexual characteristics?**

a. Testosterone

b. Estrogen

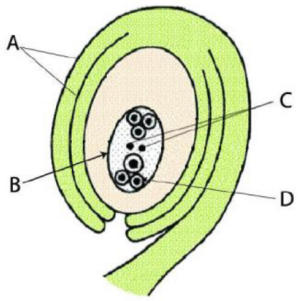
c. Progesterone

d. Androsterone

8 **What is the importance of budding to yeast fungus?**

a) Producing new individuals that are different in size
b) Producing individuals carrying new traits.
c) Producing large numbers of individuals of the same species.
d) Producing individuals more adapted to environmental conditions.

9 **The opposite figure illustrates a part of a mature ovary in a flowering plant.**



Which letter indicates to one of the products of meiotic division?

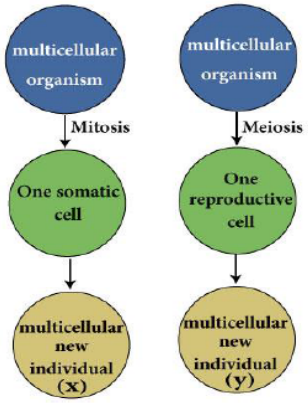
a) A
b) B
c) C
d) D

10 **Examine the picture that illustrates the formation of embryos inside a female uterus, and then deduce:**

How many ova and sperms took part in the formation of this case respectively?

a) 1-1
b) 1-2
c) 2-2
d) 2- 1

11 **Study the diagram of asexual reproduction in two different species of living organisms, and then deduce:**



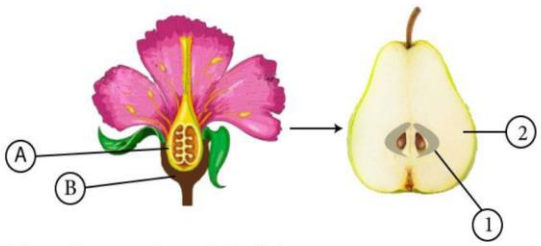
What distinguishes the new individual (X) from the new individual (Y)?

a) Exactly similar to the parent individual.
b) Different from the parent individual in characteristics.
c) Has half the number of chromosomes of the parent individual.
d) Different from the parent individual in sex.

12 **What is the reason for the difference in the number of offspring of *Fasciola* worms that infect the human liver and the number of offspring of Earthworm found in agricultural soil tunnels?**

a) Life nature.
b) Parental care.
c) Longer age.
d) Way of movement.

13) Study the opposite figure that illustrates the formation of one of the fruits. If you know that (1) is formed from (A) and (2) is formed from (B)



Which of the following best describes the produced fruit?

a) True fruit resulting from the non-occurrence of fertilization.
b) False fruit resulting from the occurrence of fertilization.
c) True fruit resulting from the occurrence of fertilization.
d) False fruit resulting from the non-occurrence of fertilization.

14 **DiGeorge syndrome is a congenital disease(present from birth) that results in a poorly developed, non-functioning thymus gland. Which of the following would be a likely problem experienced by a baby with DiGeorge syndrome?**

(A) lack of B cells. **(B) lack of antibodies.**
(C) lack of T cells. **(D) lack of macrophages.**

15 **Suppose that a new disease is discovered that suppresses the immune system. Which of the following would indicate that the disease specifically affects the B cells rather than the helper or cytotoxic T cells?**

(A) A decrease in the production of interleukin
(B) A decrease in interferon production
(C) A decrease in the number of plasma cells
(D) A decrease in the production of chemokines

16 In which of the following choices is the cell correctly matched with its function?

(A) eosinophil: produces antibodies.
(B) B lymphocyte: directly attacks foreign cells.
(C) basophil: secretes histamine.
(D) T lymphocyte: phagocytizes bacteria.

17 A person exposed to a new cold virus would not feel better for one to two weeks because:

(A) specific B cells and T cells must be selected prior to a protective response.
(B) it takes up to two weeks to stimulate immunologic memory cells.
(C) no memory cells can be called upon, so adequate response is slow.
(D) antigen receptors are not the same as for a flu virus to which she has previously been exposed.

18 The alteration of a cell's genome by the incorporation of foreign DNA is called

(A) genetic conversion.
(B) mutation.
(C) transformation.
(D) reverse transcription.

19 Viruses consist of a core of _____ surrounded by a protein coat.

(A) RNA.
(B) DNA.
(C) chromosome.
(D) nucleic acid.

20 A short length of DNA molecule has 80 thymine and 80 guanine bases. The total number of nucleotide in the DNA fragment is

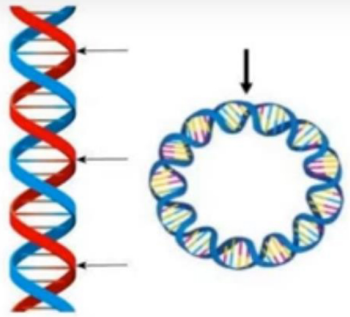
(A) 160
(B) 40
(C) 320
(D) 640

21 **Which of the following best describes the bacteriophage genome?**

a) Its DNA molecule and the head of its protein coat.
b) Its DNA molecule only.
c) The head and the tail of its protein coat.
d) Its DNA molecule and the tail of its protein coat.

22

24) Study the opposite figure that illustrates two forms of DNA molecules numbered (1) and (2) in which the arrows refer to the regions where the same biological process occurs and then conclude:



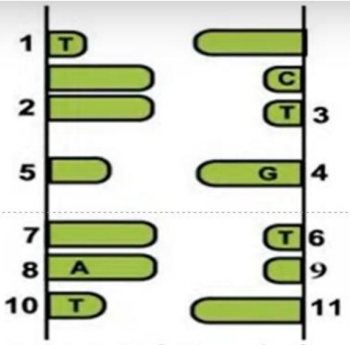
(1) (2)

What is the difference between the process in (1) and (2)?

a) End product of the process.
b) Types of enzymes used.
c) Purpose of the biological process.
d) Start point of the process.

23

In front of you a segment of a DNA molecule.



Which of the following exchanges leads to the occurrence of a mutation?

a) The nucleotide (4) instead of (2).
b) The nucleotide (2) instead of (11).
c) The nucleotide (11) instead of (8).
d) The nucleotide (8) instead of (7).

24. Which of the following compound mineral reflect light at high degree?

A. pyrite.
B. calcite.
C. quartz.
D. feldspar.

25. There is a hand specimen for cemented grains in front of you :

It is expected that the dominant size of these grains is .

A. 500 microns
B. 1500 microns
C. 2500 microns
D. 100 microns

26. Which of the following shapes can obsidian rock exists?

A. Pillows.
B. Dykes.
C. Laccolith.
D. Lopolith.

27. Which of the following is a native mineral with weak chemical bonds and cleavage in one direction?

A. Graphite.
B. Biotite.
C. Muscovite.
D. Halite.

28. What is the correct ascending order of subsurface igneous rocks in term of the percentage of silica?

dolerite - diorite - microgranite.

peridotite - microgranite - diorite.

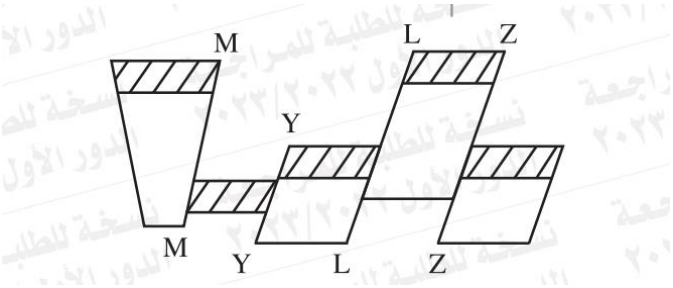
peridotite - diorite - gabbro.

basalt - andesite - rhyolite.

29. During a geological trip, one of the students found large quantities of salt-tasting cubic crystals near a lake in a hot, dry area. Deduced the type of this rock?

A. Biochemical Sedimentary.
B. Clastic Sedimentary.
C. Chemical Sedimentary.
D. Organic Sedimentary.

30. Deduce the types of the geological structures in the following figure?



A. A normal fault and three reverse faults.
B. Two reverse faults and two normal faults.
C. A reverse fault and three normal faults.
D. A strike slip fault and three reverse faults.

31. A depositional succession consists of three layers. This succession was intruded by high viscous magma. What are the characters of the tectonic structure produced?

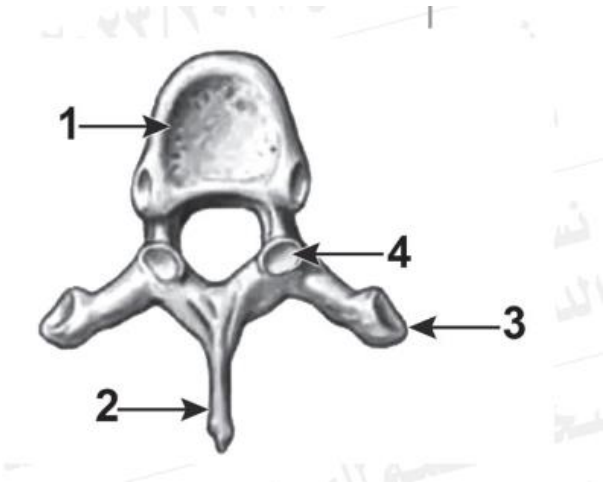
A. The limbs approach upward.
B. The limbs become away upward.
C. The hanging wall moves upward.
D. The hanging wall moves downward.

32. If you know that the length of the axis (c) is twice the length of the axis (b) and the axis (a) is twice the length of the axis (b) , and all axes are perpendicular. What is the crystal system does this crystal belong?

A. Orthorhombic.
B. Cubic.
C. Tetragonal.
D. Monoclinic.

Questions with two mark

33. The opposite figure illustrates a top view for a vertebra in human body. Study it and then answer.



Which of the numbered parts is in the same direction of the facial part of the skull?

ⓐ 1 ⓑ 2 ⓒ 3 ⓓ 4

34 - What is the role that is played by insulin hormone in oxidation of glucose inside the body cells?

A. Converts the excess glucose into glycogen that is oxidized when needed.
B. Activates respiratory enzymes inside liver and muscle cells.
C. Passes glucose through the membranes of body cells.
D. Passes glucose through the intestinal lining to the blood.

35. If the original chromosomal number in the somatic cells of a living organism is (2N). What is the chromosomal number in the cells of individuals produced from its reproduction by conjugation?

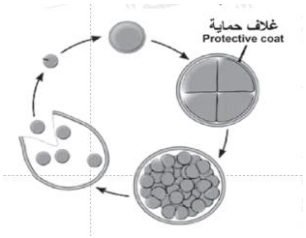
ⓐ 2N.
ⓑ 4N.
ⓒ N or 2N.
ⓓ 2N or 4N.

36. What is the source of the food substances required for nutrition of the ovule in flowering plants?

A. The nucellus and micropyle.
B. The funicle.
C. The micropyle.
D. The ovary wall and nucellus.

37. Study the figure that illustrates a type of reproduction in a living organism and then conclude.

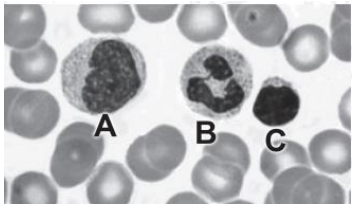
What is the type of reproduction that is illustrated in the figure?



A. Fragmentation of plasmodium of malaria.
B. Repeated binary fission in amoeba.
C. Sporogony in bread mold fungus.
D. Division of zygospore of spirogyra.

38. Study the drawing that illustrates some types of immune cells and then conclude.

What is the type of immune cell lettered by (C)?



A. Monocyte.
B. Lymphocyte.
C. Eosinophil.
D. Basophil.

39. What is the substance whose effect is similar to the effect of enzymes secreted by the natural killer cells?

A. Perforin.
B. Histamine.
C. Lymphokines.
D. Cytokines.

40. If the percentage of adenine in a rRNA molecule is 15%. What is the percentage of pyrimidines in this molecule?

A. 15%
B. 35%
C. 50%
D. Should be tested chemically.

41. What is the ratio between the number of turns in DNA molecule and the number of nitrogenous base – pairs respectively?

A. 20:1
B. 1 :20
C. 10 :1
D. 1 :10

42. What is the consequence of the presence of more than one codon for most of amino acids in the genetic code?

A. Decreasing the negative effects of gene mutations.
B. Increasing the variation of proteins.
C. Decreasing the negative effects of chromosomal mutations.
D. Translating the same codon to more than one amino acid.

43- What is the reason for non-repairing of the damage of genetic material of poliomyelitis virus inside the host cell?

A. Because of the absence of ligase enzymes inside the host cell.
B. Because the genetic material of the virus is single-stranded.
C. Because the ligase enzymes are specific in repairing the damages of genetic material of the host cell only.
D. Because the genetic material of the virus doesn't penetrate the nucleus of the host cell.

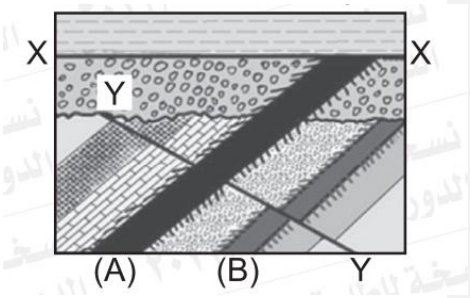
44. Study the following table then:

Determine the types of minerals (1) , (2) , (3) respectively?

A. (I) native mineral , (2) silicates , (3) sulphides.
B. (I) sulphates , (2) native mineral ,(3) silicates.
C. (I) silicates , (2) sulphides , (3) native mineral.
D. (1) sulphides , (2) native mineral , (3) silicates.

Mineral (1) المعدن (١)	Mineral (2) المعدن (٢)	Mineral (3) المعدن (٣)
Golden color ذهبى اللون	Malleable & ductile قابل للطرق والسحب	Purple color لونه بنفسجى
Black streak مخدشه أسود	Metallic luster بريقه فلزى	White streak مخدشه أبيض

45- The following figure represents a sedimentary succession in the earth crust with igneous intrusions (A) , (B):



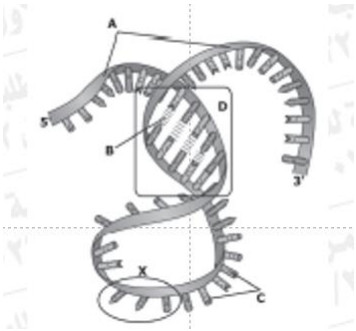
a. What is the geological structure expressed by letters (X — X)?

b. What is the geological structure expressed by letters (Y — Y)?

c. Identify the structure (B).

d. Which intrusion is older (A) or (B)?

46. Study the drawing that illustrates the structure of a type of nucleic acids and then conclude.



A- How many hydrogen bonds are present inside the circle symbolized by letter (X)?

B- What is the organic compound that is lettered by (A)?