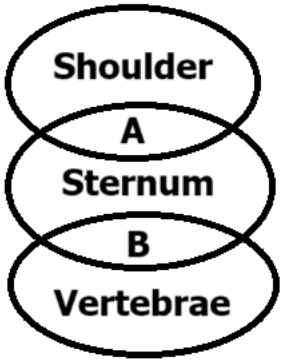
Mock Exam No. (6) for the General Secondary Certificate Examination

Biology

Choose the correct answer

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

1) The opposite drawing shows the connection of the bones of the appendicular skeleton to the bones of the axial skeleton **What is the number of the vertebra the letter (B) refers to?** **A-6** **B-9** **C-18** **D-21**	

2- What is the main function of support materials in plants?

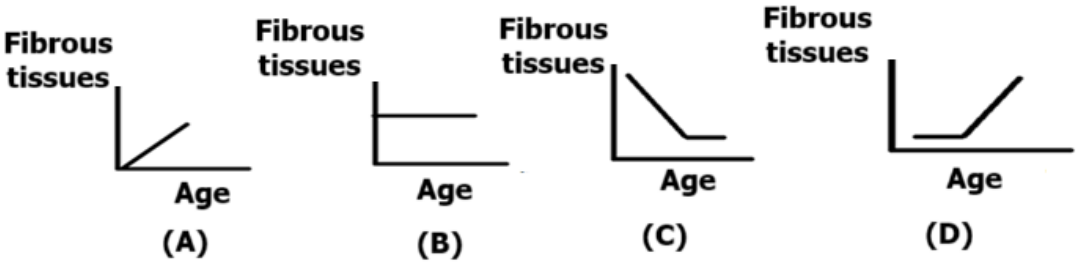
A- Increasing the rate of transport of materials throughout the plant.

B- Increasing flexibility and allowing movement of the plant.

C- Maintaining the shape of the plant and of plant cells.

D- Controlling the entry and exit of materials into and from the plant cells.

3- Which graph shows the relationship between the percentage of fibrous tissue in the joints at the back of the skull and aging?



The answer is C

4- A person suffers from an inability to move the forearm in a semi-circular way. What is the cause of this condition?

A- Arm muscle fatigue.

B- Hand cartilage corrosion

C- Fracture of the radius bone.

D- Dryness of the synovial material.

5- Why does a person suffer from an increase in the level of sodium ions in the urine above the normal level?

A - Aldosterone hormone deficiency.

B - Excessive secretion of aldosterone.

C - Vasopressin hormone deficiency.

D - Excessive secretion of vasopressin hormone.

6- What is the factor that determines the speed of transport of hormones from the endocrine glands to their target organs?

A- The amount of hormone secretion.

B- The type of cells secreting the hormone.

C- Contraction of cardiac and smooth muscles.

D- The type of medium transporting the hormone.

7- Study the provided figure and then conclude:

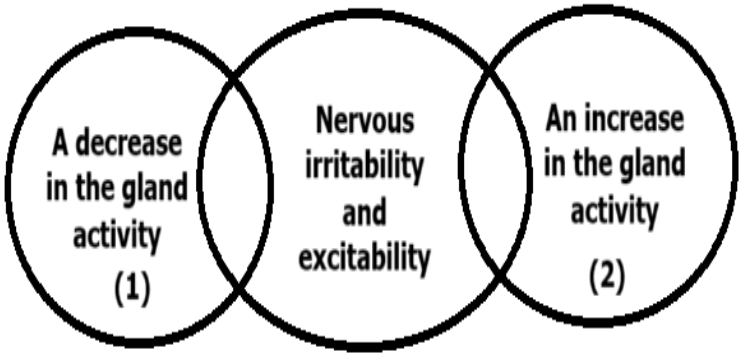
What are the names of the two glands (1) and (2) respectively?

A - Thyroid, parathyroid glands.

B - Adrenal medulla, thyroid.

C - Parathyroid glands, adrenal cortex.

D - Parathyroid glands, thyroid.



8- What is the difference between scalariform conjugation in Spirogyra and reproduction in bony fish?

A- Formation of the zygote.

B- Surrounding conditions

C- Method of reproduction.

D- Number of individuals participating in it.

9- Which of the following statements is applied to reproduction in living organisms?

A- Living organisms cannot survive without reproductive organs.

B- The failure of a single individual to reproduce leads to the extinction of the entire species.

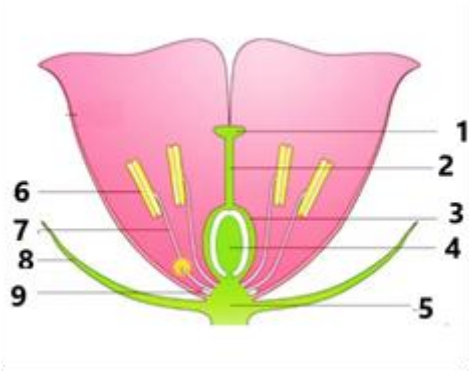
C- Reproduction is essential for the continuity and survival of the species.

D- Terrestrial organisms usually produce more offspring than aquatic organisms.

10- Which of the following organisms' reproduction leads to an increase in number of individuals and diversity of genetic traits?

A - Yeast. **B - Polypodium** **C - Bread mold.** **D - Planaria.**

11- The opposite drawing shows the structure of the flower in angiosperms.



What are the numbers of the parts in which meiosis occurs?

A - 1, 4. **B - 6, 7.**

C - 3, 7. **D - 4, 6.**

12- Which of the following is not a function of the placenta?

A- Transferring digested food and oxygen to the fetus's blood.

B- Getting rid of fetal wastes.

C- Protecting the child from shock and dryness.

D- Secreting the hormones estrogen and progesterone.

13- The period/periods in which ovulation occurs in an adult woman are ....

A - Pregnancy and menopause. **B - Taking birth control pills.**

C - Using an IUD. **D - Cutting the fallopian tubes and pregnancy.**

14- What are the reasons that stimulate the plant to deposit gums?

A - The vascular system is exposed to cuts.

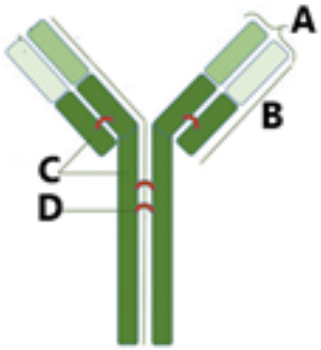
B – Availability of the suitable environment for fungal growth.

C - Tearing of the parenchyma cells adjacent to the vessels.

D - Tearing of the cork layer in the woody stems.

15- Study the provided figure and then conclude,

Which letter indicates the part that determines the specificity of each antibody?

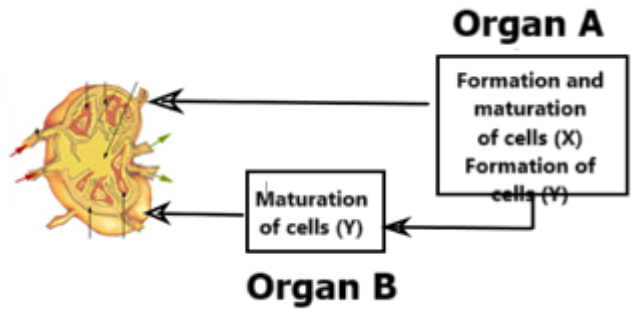


A - A. **B - B.**

C - C. **D - D.**

16- From the opposite diagram, if (X) and (Y) are two types of lymphocytes.

What is the characteristic that distinguishes organ (A) from organ (B)?



A- Maturation of lymphocytes.

B- Formation and maturation of all lymphocytes.

<u>C- Tissue found inside bones.</u>

D- Captures any microbe or foreign body.

17- What do cells infected with a virus secrete to prevent the virus from multiplying in neighboring cells?

A - Histamine. **B - Antibodies.** **<u>C - Interferons.</u>** **D - Complements**

18 - "The DNA of phage (A) was inserted into the protein coat of phage (B) which was used to attack the bacteria." What are the components of the viruses produced after the bacteria exploded?

<u>A - DNA and protein of phage A.</u>

B - DNA and protein of phage B.

C - DNA of phage A and protein of phage B.

D - DNA of phage B and protein of phage A.

19- Which of the following is separated using the helicase enzyme?

A- Thymine and deoxyribose sugar. **<u>B- Cytosine and guanine.</u>**

C- Phosphate and deoxyribose sugar. **D- Adenine and guanine.**

20 -What is the organism whose genetic material is similar to the genetic material of plastids?

A - Pneumonia bacteria.

B - Bacteriophages.

C - Amoeba.

D - Bean plant.

21- Which of the following statements best describes bacterial restriction enzymes?

A- They are secreted by viruses that infect bacteria.

B- They affect all types of nucleic acids.

C- They play a role in DNA hybridization.

D- They cut DNA into small pieces.

22- All of the following are uses of recombinant DNA EXCEPT.....

A - Producing insulin using bacterial cells to treat diabetes.

B - Modifying the human genome of the fetus before birth to select certain traits, such as blue eyes.

C - Modifying the bacterial genome to produce antigens of pathogens to produce safer vaccines.

D - Modifying the plant genome to produce crops resistant to certain diseases.

23- Study the provided mRNA strand	/5.....AAAA AUG AAAAAAAAA UAA AAAAAA ...../3

The number of amino acids produced by the translation of this strand is....

A - 1 **B - 2** **C - 3** **D – 4**

24- An Egyptian-Australian study of the Nuba Mountains in the Eastern Desert proved that the rocks of this region contain economic quantities of gold. What's the branch of geology responsible for this study?

a – Mineralogy

b – Geophysics

<u>c – Geochemistry</u>

d – Stratigraphy

25- Magnesium silicates share in the formation of ....

a- Continental crust.

<u>b- Mantle.</u>

c- Outer core.

d- Inner core.

26- The provided two geological structures are formed as a result of ……. respectively.

(1)

(2)

a- (1) Wind, (2) Water.

b- (1) Water, (2) Wind.

<u>c- (1) Water, (2) Earth movements.</u>

d - (1) Winds, (2) Earth movements.

27- In the fold shown in the figure, how many axial planes, wings and axes are there respectively?

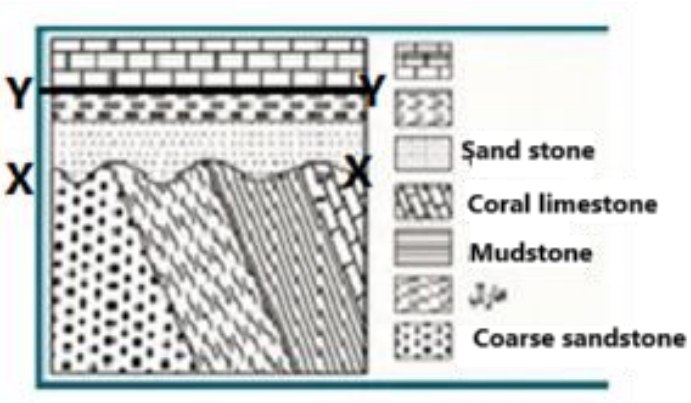
a - (4-2-4).

b- (1-2-3).

c- (2-4-5).

<u>d- (1-2-5).</u>

28- From the opposite figure, identify the two types of unconformity surfaces (X - X) and (Y - Y).



a- (X - X) is angular and (Y - Y) is nonconformity.

b- (X - X) is nonconformity and (Y - Y) is disconformity.

c- (X - X) is disconformity and (Y - Y) is nonconformity.

d- (X - X) is angular and (Y - Y) is disconformity.

29 - One of the minerals of granite rock and is used in the manufacture of ceramics is .....

a- Feldspar. **b- Clay.** **c- Quartz.** **d- Mica.**

30- The similarity between galena and calcite is....

a- The values of the angles between the cleavage planes.

b- The degree of reflection of the light falling on them.

c- The mineral group to which they belong.

d- The number of directions of the cleavage planes.

31- The magma that forms granite differs from that forming rhyolite in .....

a- the rate of heat loss.

b- the mineral composition.

c- the amount of silica content.

d- the crystallization temperature.

32- Which of the following is not expected to occur when oil reservoir rocks undergo a metamorphic process?

a - Presence of quartzite.

b - Presence of marble.

c – Losing of their porosity.

d- Foliation of their texture.

Questions (33-44) Two points for each question:

33- The outer layers of the stem are thickened by the deposition of.....

A - Cutin and lignin. **B - Suberin and cutin.**

C - Cellulose and suberin. **D - Cellulose and cutin.**

34- What is the cause of high blood glucose in a diabetic patient?

A - The conversion of glycogen in the liver to glucose in the blood.

B - The glucose does not pass into the body's cells.

C - Increased absorption of glucose in the digestive tract.

D - The glucose does not pass into the nephrons in the kidney.

35- How many Spirogyra filaments are produced by conjugation of two opposite Spirogyra filaments, one with 27 cells and the other with 37 cells?

A - 27. **B - 30.** **C - 32.** **D - 37.**

36- What is the importance of formation of 3 polar bodies during oogenesis?

A- Reducing chromosomes and storing food.

B- Formation of a round-shaped egg.

C- Storing food and increasing the chances of fertilization.

D- Postponing the second meiotic division.

37- The following table shows the average number of offspring resulting from each successful fertilization process.

Organism	Number of offspring
Lice	4500 eggs
Lion	2-5 cubs
Blue whale	1 whale
Fish	100 -1000 fish

Which organism will probably spend the most time in parental care?

A - Lice. **B - Lion.** **C - Blue whale.** **D - Fish.**

38- Which white cell does not pick up (engulf) microbes?

A - Natural killer.

B - Basophil.

C - Neutrophil.

D - Monocyte.

39 - "A person was infected with microbe (A) at the age of (5 years) and recovered from it. Then he was infected with microbe (B) at the age of (7 years) and recovered from it. Then he was infected with microbe (A) at the age of (30 years) and did not show symptoms of the disease". How many times did this person's immune system have primary and secondary immunity, respectively?

A - 2, 1 **B - 1, 1** **C - 1, 2** **D - 2, 2**

40- How many DNA molecules are there in a secondary spermatocyte of humans?

A- 22 molecules.

B- 23 molecules.

C- 46 molecules.

D- 92 molecules.

41- What is the result of non-separation of chromatids after centromere division?

A- DNA duplication. B- Polyploidy C- Genetic mutation. D- True mutation.

42- Which type of nucleic acids contains hydrogen bonds?

A- mRNA B- tRNA C- Ribosomes D- rRNA

43- What is the main role of ribosomal RNA (rRNA)?

A- It transfers genetic information from the nucleus to the cytoplasm.

B- It binds to the genetic codon of amino acids.

C- It builds polypeptide chains that make up proteins.

D- It modifies the structure of other ribonucleic acids.

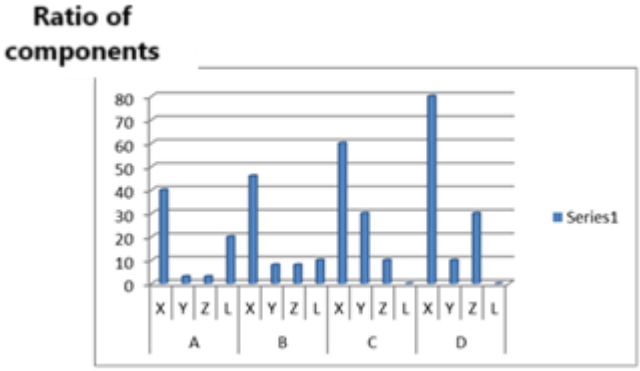
44- The drawing shows four groups of igneous rocks which are,

-(A) Ultrabasic

-(B) Basic

-(C) Intermediate

-(D) Acidic



What do Y, X, Z, L represent?

a- (X) Silica, (Y) Iron, (Z) Potassium, and (L) Calcium.

b- (X) Silica, (Y) Calcium, (Z) Potassium, and (L) Iron.

c- (X) Iron, (Y) Iron, (Z) Potassium, and (L) Calcium.

d- (X) Iron, (Y) Iron, (Z) Calcium, and (L) Potassium.

Essay Questions (two points for each question)

45- The nucleus of an early embryonic cells of a male frog was removed and re-implanted in a frog egg whose nucleus is removed.

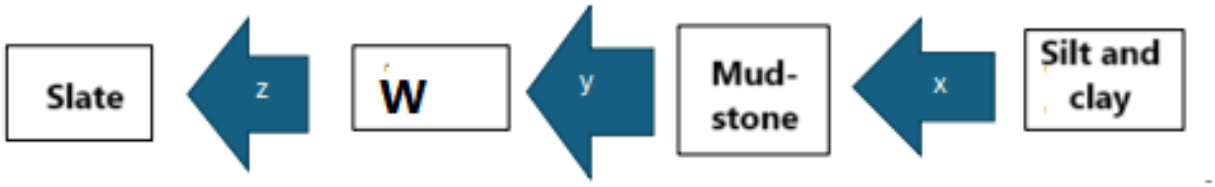
A- What is the name of this process? And what is the gender of the resulting individual?

- Cloning process, Male

B- What is the artificial method of reproduction that can be conducted on a frog to obtain only females?

- Artificial parthenogenesis

46- From the following diagram



A- Which geological processes are represented by the letters X, Y, Z?

Process X: Consolidation

Process Y: Compression

Process Z: Metamorphism

B- Which rock is represented by the letter (W)?

Shale or shale clay