

Biology

Time: 3 hours

(الإجابة في نفس كراسة الأسئلة)

(الدور الأول ٢٠٢٢)

الأحياء بالإنجليزية

الأسئلة في إحدى عشرة صفحة**The first group: from 1 to 9****1- Choose one of the two questions (a) or (b), then mention the scientific term that indicates it:**

(a) The fusion of a male nucleus (n) with the two embryonic sac nuclei to form a nucleus (3n).

.....

(b) The formation of a seedless fruit without pollination or fertilization.

.....

**2- Choose one of the two questions (a) or (b), then correct underlined words:**

(a) The amount of DNA in an unfertilized egg of a bee is twice the amount of DNA in a cell in a male bee's wing.

.....

(b) If the number of purine nitrogen bases of the DNA molecule is 180 bases, the number of turns of this molecule will be 27 turns.

.....

**3- Choose one of the two questions (a) or (b), then state the type of cell division that occurs in the following cases:**

(a) The zygospore of Spirogyra.

.....

(b) The spore of Adiantum plant.

.....

**4- Mention the name of a chemical compound that is sprayed on the stigmas of flowers to stimulate hormonal activity and activate the ovary to form a seedless fruit in the Parthenocarp.**

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.....  
.....

**5- Choose the correct answer from the following:**

Muscles are connected to bones by.....

- A- ligaments      B- tendons      C - muscle tissue      D - nervous tissue

**6- What happens when?**

If lactic acid accumulates in skeletal muscle.

.....

**7- How true is the following statements?**

(a) If a pregnant woman in the fourth month is given the hormone progesterone, a miscarriage will occur .

.....

(b) The second meiotic division occurs in the fallopian tube during fertilization.

.....

**8- Mention one function for each of the following structures:**

The structure	The function
a) Spleen	..... .....
b) Peyer's patches	..... .....

**9- Mention the site of secretion of the hormone in the following cases:**

(a) Hormone stimulating the formation and secretion of interstitial cells in the testes.

.....

(b) The hormone that converts glucose into glycogen in the liver.

.....

**The second group: from 10 to 18****10- Choose one of the two questions (a) or (b), then mention the scientific term that indicates it:**

(a) All the body muscles that move the different organs of the body.

.....

(b) It is the point of connection between terminal branch of the nerve fibre and the motor end plate of the muscle fibre.

.....

**11- Mention the chromosome set of cells in the Prostate gland and the chromosome set of secondary spermatocytes. .....****12 - Choose the correct answer from the following:**

Tissue culture experiments have shown that any somatic cell contains all.....

a- genetic information      b- cytoplasm      c- mitochondria      d- chloroplasts

**13- Correct the underlined words:**

Cortisone relaxes the pubic symphysis at the end of pregnancy.

.....

**14- What happens in the following case?**

Shortage of calcium ions in muscle fibers?

.....

.....

**15- Choose the correct answer from the following:**

The joints that connect the bones of the skull to each other are considered ..... joints.

- A- fibrous    B- cartilaginous    C- limited movable    D- synovial

**16- Choose one of the two questions (a) or (b), then mention the scientific term that indicates it:**

(a) The body's ability to resist infection.

.....

(b) Chemical substances that act as a means of communication between the cells of the immune system with each other and the other body cells.

.....

**17- If the pathogens succeed to passing the means of the first line of defense of the body, they face the means of the second line of defense, mention the means of the second line of defense.**

.....

.....

.....

**18- Give reasons for the following:**

Viruses containing RNA genome has mutations more than those containing DNA genome.

.....

.....

.....

**The third group: from 19 to 27****19- Choose one of the two questions (a) or (b), then write the scientific term:**

(a) The most specialized type of lymphocyte.

.....

(b) A type of specialized lymphocyte that secretes perforin and lymphatic toxins.

.....

**20- Choose one of the two questions (a) or (b), then choose the correct answer:**

(a) From the examples of false fruits.....

A- mango

B- apple

C- orange

D- seedless grapes

(b) The leaves of the calyx and the stamens participate in the formation of a..... fruit.

A - tomatoes

B- pumpkin.

C - strawberry

D - pomegranate

**21- Choose one of the two questions (a) or (b), then correct the underlined words.**

(a) There is tissue inside the bones of the clavicle. , sternum, skull and verttbral celunn that produces antibodies.

.....

(b) The genetic material of Bacteriophage consists of five types of nucleotides.

.....

( بقية الأسئلة في الصفحة السادسة )

**22-Name one function for each of the following:**

(a) Iodine in food

.....  
.....

(b) Amniotic membrane

.....  
.....

**23- What do you explain the following?**

The ability to adapt to the environment is reduced for individuals that reproduce asexually.

.....  
.....  
.....

**24- Correct the underlined words.**

If the plant ovule is not fertilized, may the flower withers or form false fruits.

.....

**25- Hormones have a great importance in the life of the human beings as the performing of many functions. Mention the functions of hormones.**

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**26- Give reasons for the following.**

Spirogyra alga resort to conjugation in unsuitable conditions?

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.....  
.....  
.....  
.....

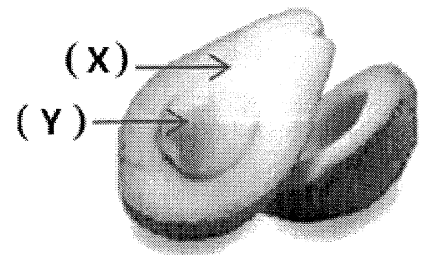
**27- The opposite figure representing a fruit,complete the following.**

(a) Structure (X) arises from.....

.....

(b) The structure (Y) arises from .....

.....



**Fourth group: from 28 to 36**

**28- Choose one of the two questions (a) or (b), then mention the chromosomal set of the following structure.**

(a) Secondary spermatocyte - Sertoli cells

.....

(b) Polar body - Corpus luteum.

.....

**29- Correct the underlined words.**

Aldosterone hormone increases calcium ions in urine.

.....

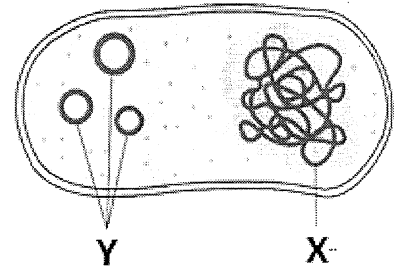
**30- Give the scientific term that indicates the following statement:**

A compound secreted in the nerve endings and is the only stimulus to muscle fiber contraction.

.....  
.....  
.....

**31- Choose the correct answer from the following:**

In the opposite figure, each of (X) and (Y) differ in.....



a- the number of genes

c- The type of DNA

b- the number of terminal phosphate groups

d- type of replication enzyme

**32- The following table shows the ratios of nitrogenous bases in two samples (1) and (2) of DNA.**

Calculate the ratio of nitrogenous bases

X= .....

Y = .....

Sample	adenine	guanine	thymine	cytosine
(1)	35%	15%	35%	X
(2)	Y	40%	15%	40%

**33- Explain what happens in the following case?**

A sudden, severe contraction of the gastrocnemius muscle.

.....  
.....  
.....  
.....



**34- Choose one of the two questions (a) or (b), then specify its place in the human body:**

(a) Thymus gland

.....

.....

(b) Lymph nodes.

.....

.....

**35- Mention one function for each of the following:**

The structure	The function
a - Physiological support	..... ..... .....
b- Foramen magnum	..... ..... .....

**36 - Choose from the phrases of column (B) what fits the statements of column (A):**

Example (A)	Type of mutation (B)
1- The tetraploid (4n) in cotton, wheat, apples and grapes is considered. ( )	a - undesirable gamete mutation b- desirable chromosomal mutation c - desirable gene mutation
2- Klinefelter and Turner syndroms in humans are considered. ( )	

**Fifth group: from 37 to 45**

**37- Choose one of the two questions (a) or (b), then state the main reason for one of the following cases:**

(a) A child with mental retardation, short body, large head and short neck.

.....  
 .....

(b) After carrying out several tests on a human blood sample, It was noted that severe decrease in sodium levels in blood.

.....  
 .....

**38- Choose from column (B) what fits the statements of column (A):**

(A)	(B)
1- Mast cells ( )	a- It produces antibodies.
2- Plasma B cells ( )	b - It produces substances that cause inflammation and swelling of the infected tissues.
	c - It has a main role as the body's first line of defense against microbes.

**39- Choose the correct answer from the following:**

The placenta carry out all of the following except

- a- transfer amino acids to the fetus.
- b - transfer urea from the mother to the fetus
- c - transfers metabolic wastes to the mother
- d- secretes the hormone progesterone

**40- Correct the underlined words.**

Workers of bees are similar to the queen in shape, size and fecundity.

.....  
 .....

**41- Give reasons for the following:**

The doctor may prescribe to a diabetic patient doses of liver-stimulating drugs.

.....

.....

**42- Choose the correct answer from the following:**

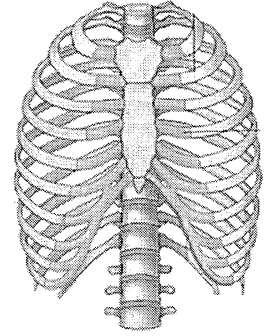
The number of bones that form the opposite shape is .....

a- 25

b- 37

c- 40

d- 42

**43- Choose one of the two questions (a) or (b), then mention the type of cell division and the name of the resulting cells in one of the following cases?..**

(a) Secondary oocyte.

.....

(b) The Ookinete in Plasmodium of malaria.

.....

**44 - What is meant by a secondary immune response?**

.....

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.....

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**45- Determine the site of each of the following:**

The structure	
a - Lateral collateral ligament	..... ..... .....
b- Pubic symphysis	..... ..... .....