

اجابات بوكليت

الوزارة الاول

BIOLOGY

ثانوية عامة 2020

موقع مدرستي التعليمي
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اجابة نموذج الامتحان الأول (أ)

1- Write the scientific term:-

1- Choose (A) or (B) then,
Write the scientific term:

- (A) a flat bone pointed at its lower part which is cartilaginous.
(B) Enzyme found in large amount at neuromuscular junctions which make membrane permeability to ions returns to the resting state.

١- اختر أحد السؤالين (أ) أو (ب) ثم
اكتب المصطلح العلمي الدال عليه ،
(أ) عظمة مفلطحة ومدببة من
أسفل جزؤها السفلي غضروفي.
(ب) أنزيم متوفر في نقاط الاتصال
العصبي العضلي يعمل على
إعادة نفاذية غشاء الليقة
العضلية إلى وضعها الطبيعي.

A-Sternum Bone

B-Cholinesterase enzyme

2-Mention the Site and Function:-

2- Choose (A) or (B) then,
Mention the site and the function of:

- (A) generative nucleus
(B) Polar nuclei

٢- اختر أحد السؤالين (أ) أو (ب)
ثم اذكر المكان والوظيفة ،
(أ) النواة المولدة.
(ب) النواتان القطبيتان (نواتا
الكيس الجنيني).

(A)

Site: Inside mature pollen grain

Function: Divides by mitosis to form the 2 male nuclei that migrate to the end of the tube to complete double fertilization

(B)

Site: Inside mature ovule (after meiosis division followed by mitosis division of the embryo sac nuclei 3 times)

Function: During double fertilization phenomenon the 2nd male nuclei fuses with the 2 polar nuclei through the micropyle forming endospermic nucleus which divides by mitosis division several times forming endospermic tissue (triple fusion)

Male nucleus (n) + Embryo sac nucleus (2n) = Endospermic nucleus (3n)

3-What is meant by :-

3- Choose (A) or (B) then, What is meant by:

(A) Breeding

(B) non-protein amino acids

٣- اختر أحد السؤالين (أ) أو (ب)

ثم اذكر المقصود به ،

(أ) التربية النباتية .

(ب) الأحماض الأمينية غير البروتينية .

(A):

One of the techniques used by man to protect the plant from diseases by
Changing the traits of plants in order to produce desired characteristics

(B)

are toxic chemical compounds and they are acids don't enter in the structure of
proteins in the plants as they act as a protective substance for the plant against
they pathogens as canavanine and cephalosporin

4-Choose the correct answer:-

In stages of oogenesis of human female, the
cells increase in size during

- (a) Multiplication phase
- (b) The growth phase
- (c) Maturation phase
- (d) Metamorphosis phase

يزداد حجم الخلايا عند تكوين البويضات

في أنثى الإنسان في مرحلة

- (أ) التضاعف.
- (ب) النمو.
- (ج) النضج.
- (د) التشكل النهائي.

-The growth phase (b)

5-Give reason:-

The lymph nodes present along network of
the lymphatic vessels

توجد العقد الليمفاوية على طول

شبكة الأوعية الليمفاوية.

Because they store the white blood cells (lymphocytes) that help in fighting
against disease or infections, where they are divided internally into pockets filled
with B-Lymphocytes, T-Lymphocytes, Macrophages and some types of other
white blood cells ,each lymphatic node is connected with several lymphatic
vessels that transfer the lymph from the tissues to nodes for its filtration to get rid
of the suspended foreign pathogens away from the body.

6- What would happen if :-

Content of the basic amino acids arginine and lysine was decreased in histone proteins.

تناقص كمية الحمضين الأمينيين القاعديين أرجينين وليسين في البروتينات الهستونية.

Histone proteins cant bind strongly to phosphate group of DNA molecule as the basic amino acids Arginine & Lysine have +ve Alkyl groups which binds strongly with the -ve phosphate groups in the DNA , so cant form string of nucleosomes to pack the DNA in nucleus

7-The given figure :-

7- The given figure represent the splitting of zygote in human female. answer the questions.



٧- يوضح الشكل المقابل تفلح البويضة المخصبة في أنثى الإنسان . في ضوء ذلك أجب عن الأسئلة الآتية :

1st: when the morula implanted among the structure No. (4)

2nd: what are the changes occur in no.(1) in 4th pregnancy month? Why?

أولاً : متى تنغرس التوتية في التركيب رقم (٤) ؟

ثانياً : ما التغيرات التي تحدث في التركيب (١) في الشهر الرابع من الحمل؟ ولماذا؟

1st :

At the end of the first week of pregnancy (7th day of pregnancy)

2nd :

The corpus luteum inside the ovary which secretes progesterone just after the ovulation till the end of the 3rd month degenerates and the secretion of progesterone H. continue with the placenta as the placenta is completely formed and takes over the function .Also, the 2 ovaries will stop producing ova until after delivery (no menstrual cycle)

8-Explain:-

8- Explain the effect of ACTH & ADH on human kidney.

٨- وضح تأثير كل من هرمون ACTH وهرمون ADH على كليتي الإنسان.

ACTH:

it acts indirectly on the kidney as ACTH stimulates the Adrenal Gland cortex to secrete its hormones (Hormones of the Adrenal gland cortex) steroid hormones . Such as : Mineral corticoids :Aldosterone ; which play an important role in homeostasis of mineral salts in the body as they increase the reabsorption of sodium from kidney tubules and increase excretion of potassium

ADH:

it is hormone secreted from the neurosecretory cells in the hypothalamus , stored in the posterior pituitary and secreted by increasing the reabsorption of water from kidney tubules and decreases the amount of excreted urine so increase the blood pressure (Keep water balance)

9-Answer the following :-

9- "Unknown gene (X) consists of 120 pairs of nucleotides"

Answer the following:

1st: i. How many amino acids used to synthesis a protein from this gene?

ii . How many twists in this gene?

2nd: Mention the first triple codon after the promoter on DNA during mRNA transcription.

٩- جين (X) يتكون من (١٢٠) زوجا من النيوكليوتيدات .

أجب عن الآتي:

أولا : ١- ما عدد الأحماض الأمينية التي تدخل في تكوين البروتين الناتج عن هذا الجين؟

٢- ما عدد اللفات المكونة لهذا الجين؟

ثانياً : اذكر أول شفرة ثلاثية تلي المحفز على DNA عند نسخ mRNA

1st :

120 nucleotides on each DNA strand - 3 nucleotide = one codon ,

No. of codons $120/3 = 40$ codons - Each codon = 1 Amino acid ,

No. of amino acids = $40 - 1$ (Stop codon not translated into A.A) = 39 A.A

No. of twists in the gene = No. of bases in pairs / 10 pairs per turn

= $120/10 = 12$ twists

2nd :

TAC on DNA → Codon for Methionine A.A

Dr. Mina H. Messiha (01007765878 - 01225768986)

10 – Define :-

10- Choose (A) or (B) then, define:

(A) Patella

(B) The motor unit

١٠- اختر أحد السؤالين (أ) أو (ب) ثم

عرف :

(أ) الرضفة.

(ب) الوحدة الحركية.

(A) :

Patella : It is a small rounded bone in front of knee joint to protect it

(B) :

Motor unit: It's functional unit of skeletal muscles which consists of a group of muscle fibers and the nerve fiber supplying them and represents the connection of a motor nerve fiber with number of muscle fibers that ranges between 5 : 100 Muscle fibers

11-Choose :-

The first bulwark in the resistance of pathogens in plant is.....

(a) The epidermis

(b) The formation of tyloses

(c) The cell wall

(d) The cork formation

حائط الصد الأول في مقاومة

النبات للميكروبات هو

(أ) الأدمة الخارجية.

(ب) تكوين التيلوزات.

(ج) الجدار الخلوي.

(د) تكوين الفلين.

Epidermis (A)

12-Explain :-

water has an important role in life cycle of ferns.

يلعب الماء دوراً مهماً في دورة

حياة السراخس.

-it is needed for the spores which only germinate in moist soil to gametophyte

-The ciliated sperms liberate & swim over soil water to reach the mature Archegonia to fertilize the egg cell inside it

-Nutrition of gametophyte which carry Rhizoids at the posterior region of its lower surface to absorb water and mineral salts from the soil

13-What would happen :-

When mixing nucleic acids from two different sources, then heating them to 100°C finally the mixture is allowed to cool.

مزج الأحماض النووية من مصدرين مختلفين ثم رفع درجة الحرارة إلى 100°م ثم يُسمح للخليط أن يبرد.

That leads to formation of some original double helices in addition to some hybrid double helices, each of them consists of two different strands from the two living organisms

14- Write the scientific term:-

A series of specific defense mechanisms that resist the pathogen.

سلسلة الوسائل الدفاعية التخصصية التي تقوم بها الخلايا الليمفاوية لمقاومة الكائن المسبب للمرض.

The Immune response of acquired immunity

15-Choose :-

The infective stage of Malaria in human is....

الطور المعدي لمرض الملاريا في الإنسان هو

- (a) oocyst
- (b) sporozoites
- (c) ookinete
- (d) merozoites

- (أ) كيس البيض.
- (ب) الأسبوروزويتات.
- (ج) الطور الحركي.
- (د) الميروزيتات.

Sporozoites (B)

16- Compare between :-

16- Choose (A) or (B) then, compare between:

(A) The function of natural killer cells & mast cells.

(B) Chemokines & Interleukins.

١٦- اختر أحد السؤالين (أ) أو (ب)

ثم قارن بين :

(أ) الخلايا الصارية والخلايا القاتلة

الطبيعية. (من حيث الوظيفة).

(ب) الكيموكينات والإنترلوكينات.

(A)

P.O.C	Natural Killer cells	Mast cells
Function	Attack the body cells infected with the virus and the carcinogenic cells and secrete enzymes which destroy these infected cells	It plays a role in the inflammatory response , as they secrete large quantities of inflammatory generating substances such as Histamine and other substances

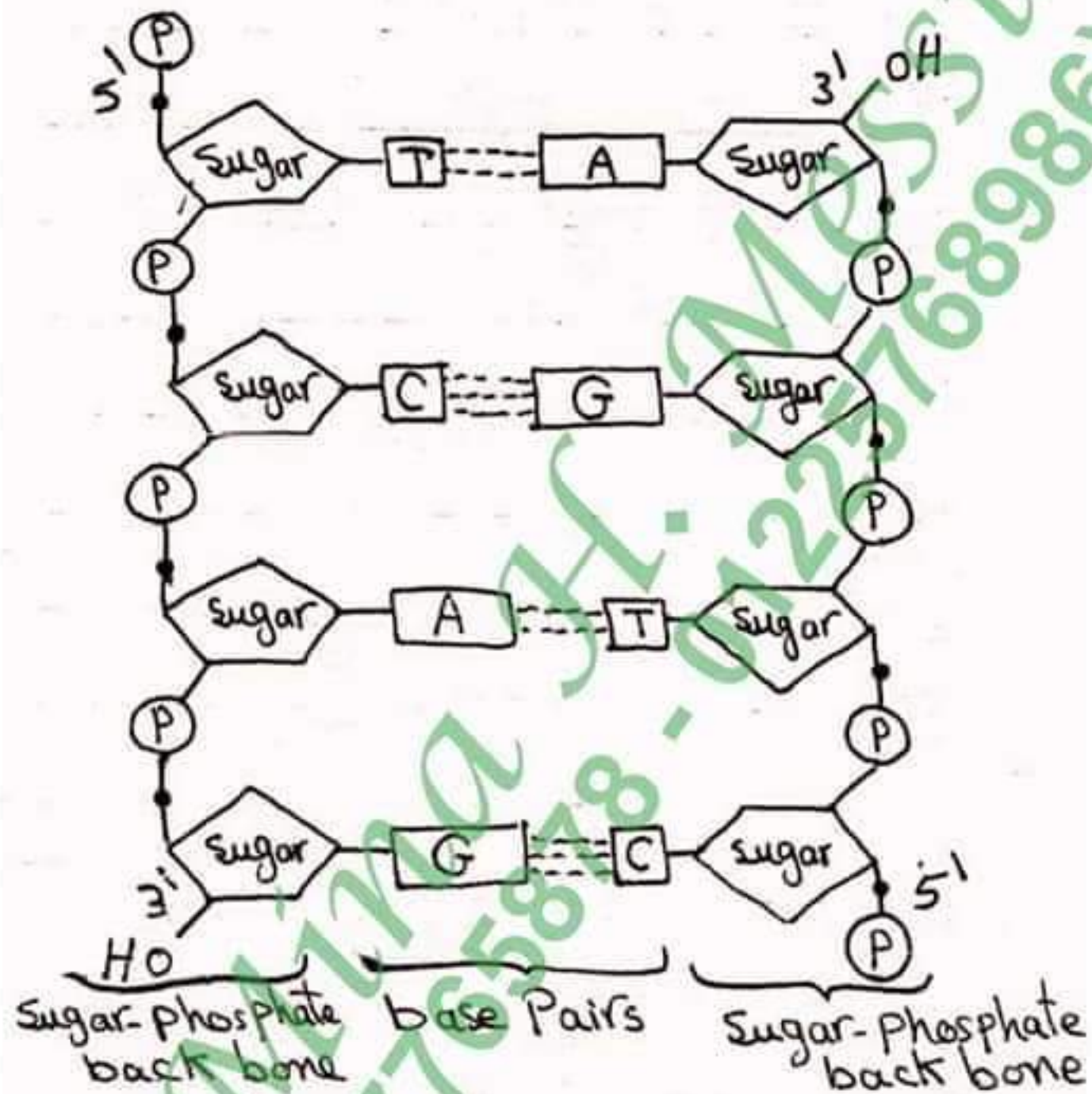
(B) Chemokine's and Interleukins :-

P.O.C	Chemokine's	Interleukins
Function	They attract the large circulating phagocyte cells which are found in Blood with large number to sites of existence of microbes or foreign particles to prevent their reproduction & spreading	They are chemicals that 1) Mediate the communication bet different immune cells 2) Mediate the communication bet immune cells and body cells 3) Help the immune system to perform its defensive role

17-Draw:-

17- Draw a complete labelled diagram for the structure of DNA molecule.

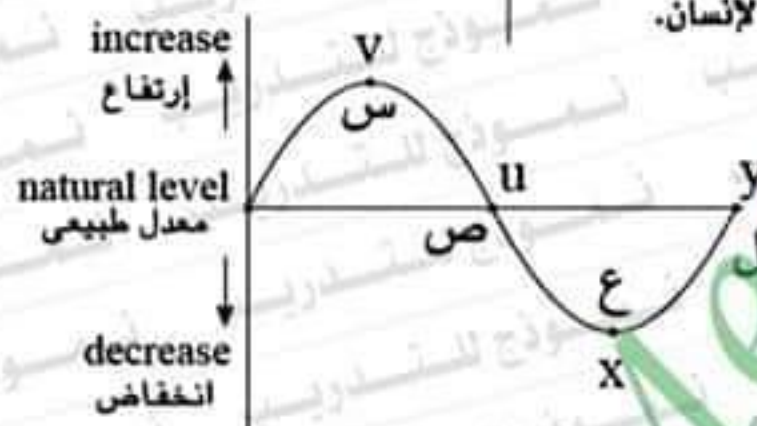
١٧- ارسم شكلاً كاملاً للبيانات
يوضح تركيب جزيء DNA.



18-The graph represents:-

"The graph represents some changed may be occur to the glucose in human blood" answer:

١٨- يوضح الشكل التالي منحنى لبعض التغيرات المحتملة حدوثها لمعدل سكر الجلوكوز بدم الإنسان.



1st : name the hormone which is responsible for:

أولاً : حدد اسم الهرمون

i. Change the position (v) to (u)?

الذي يعدل :

ii. Change the position (x) to (y)?

١- الوضع من (ص) إلى (ص).

2nd: What is the normal level of glucose in human blood?

٢- الوضع من (ع) إلى (ل).

3rd: The level of glucose sugare-sometimes-increases over the natural level in human blood . What are the cells which responsible for treatment of this increases?

ثانياً : ما المعدل الطبيعي لمستوى

سكر الجلوكوز في دم الإنسان؟

ثالثاً : تزداد أحياناً نسبة سكر الجلوكوز

بدم الإنسان عن المعدل الطبيعي.

ما الخلايا المختصة بمعالجة

هذه الزيادة؟

1st :

i) Insulin

ii) Glucagon

2nd :

80 – 120 milligram / 100cm³ blood

3rd :

Beta cells of islets of Langerhans in pancreas

19-Write scientific term:-

19- Choose (A) or (B) then, Write the scientific term:

- (A) In prokaryotes much smaller, circular DNA molecules are widely used in genetic engineering.
- (B) Reaction takes place in ribosome which results in the peptide bond formation between the first amino acid to the second one.

١٩- اختر أحد السؤالين (أ) أو (ب)

- ثم اكتب المصطلح العلمي الدال عليه ،
- (أ) جزيئات صغيرة دائرية من DNA في أوليات النواة تستخدم على نطاق واسع في الهندسة الوراثية.
- (ب) تفاعل يحدث في الريبوسومات وينتج عنه تكوين رابطة ببتيدية بين الحمض الأميني والحمض الذي يليه.

(A)

Plasmid

(B)

Peptidyl – Transferase reaction

20-Mention the Importance of :-

20- Choose (A) or (B) then, mention the importance of it:

- (A) The pulling roots.
- (B) Foramen magnum.

٢٠- اختر أحد السؤالين (أ) أو (ب)

- ثم وضع أهميته ،
- (أ) الجذور الشاذة.
- (ب) الثقب الكبير.

(A)

The pulling root: By Their contraction, they can pull the plant downwards so the corms or bulbs move downward to the suitable normal level in the soil and the subterranean storing stem remains a suitable distance from the soil surface which enhances the supporting of its aerial parts and protecting them against wind effect

(B)

Foramen magnum: it's a large hole at the base of the posterior part of the skull where the spinal cord pass to connect with the brain

21-Give reason :-

21- Choose (A) or (B) then, give reason:

(A) Presence of sertoli cells in human testis.

(B) The pollination process plays a double role in Angiosperms.

٢١- اختر أحد السؤالين (أ) أو (ب)

ثم علل .

(أ) وجود خلايا سرتولي في خصية ذكر الإنسان.

(ب) يلعب التلقيح دوراً مزدوجاً في النباتات الزهرية.

(A)

to feed the sperms inside the seminiferous tubules (inside the testis) & also Sertoli cells thought to have immunization function to the sperms

(B)

1-help flower with male cells to fertilize the ovule that develops into the seed

2-Stimulates the activity of the Auxins necessary for the growth of the ovary into a mature fruit play a role in seed & fruit formation

22-How :-

22- How do control the sex of farm animals newborn by laboratory means.

٢٢- كيف يمكن التحكم في جنس مواليد حيوانات المزرعة معملياً؟

The sperms with [X] chromosomes are separated from the sperms with [Y] chromosomes by

a) Centrifugation

b) exposure to a limited electric field

Importance :

1-Produce male cattle for meat only

2-Produce female cattle for milk or reproduction

23-Choose :-

The cells in which major histocompatibility (MHC) protein molecules found are.....

- (a) Monocytes & suppressor T-cells
- (b) B -cells & helper T-cells
- (c) Monocytes & helper T-cells
- (d) Macrophage & B- cells

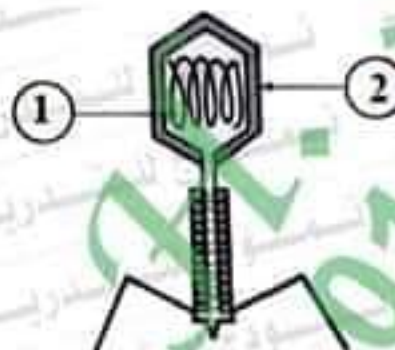
توجد جزيئات بروتين التوافق النسيجي في الخلايا

- (أ) وحيدة النواة والثائية المثبطة T_S
- (ب) البالية البلازمية والثائية المساعدة T_H
- (ج) وحيدة النواة والثائية المساعدة T_H
- (د) البلعمية الكبيرة والخلايا البالية B

Macrophage & B-cells

24-The given figure :-

25- The given figure represents a virus , answer the following:



٢٥- يمثل الشكل

المقابل أحد الفيروسات.

في ضوء ذلك

أجب عن

الأسئلة الآتية ،

- i. Name this virus.
- ii. Which element found in (1) and does not found in (2)
- iii. What would happen if this virus attack a bacterial cell?

أولاً : ما اسم هذا الفيروس؟

ثانياً : ما العنصر الذي يدخل في التركيب

(١) ولا يدخل في التركيب (٢) ؟

ثالثاً : ماذا يحدث إذا هاجم هذا الفيروس

خلية بكتيرية؟

- i) Bacteriophage (a virus infects the bacteria)
- ii) it contains phosphorus only
- iii)

as soon as the attachment of the phage with the bacterial cell wall, the genetic material of viruses passes into bacterial cell and multiplied in number and after 32 minutes the bacterial cell bursts and comes out of it about 100 new complete phage that are ready to attack other bacterial cell.

25-Mention the uses :-

24- Mention the uses of human genome to improve the offspring?

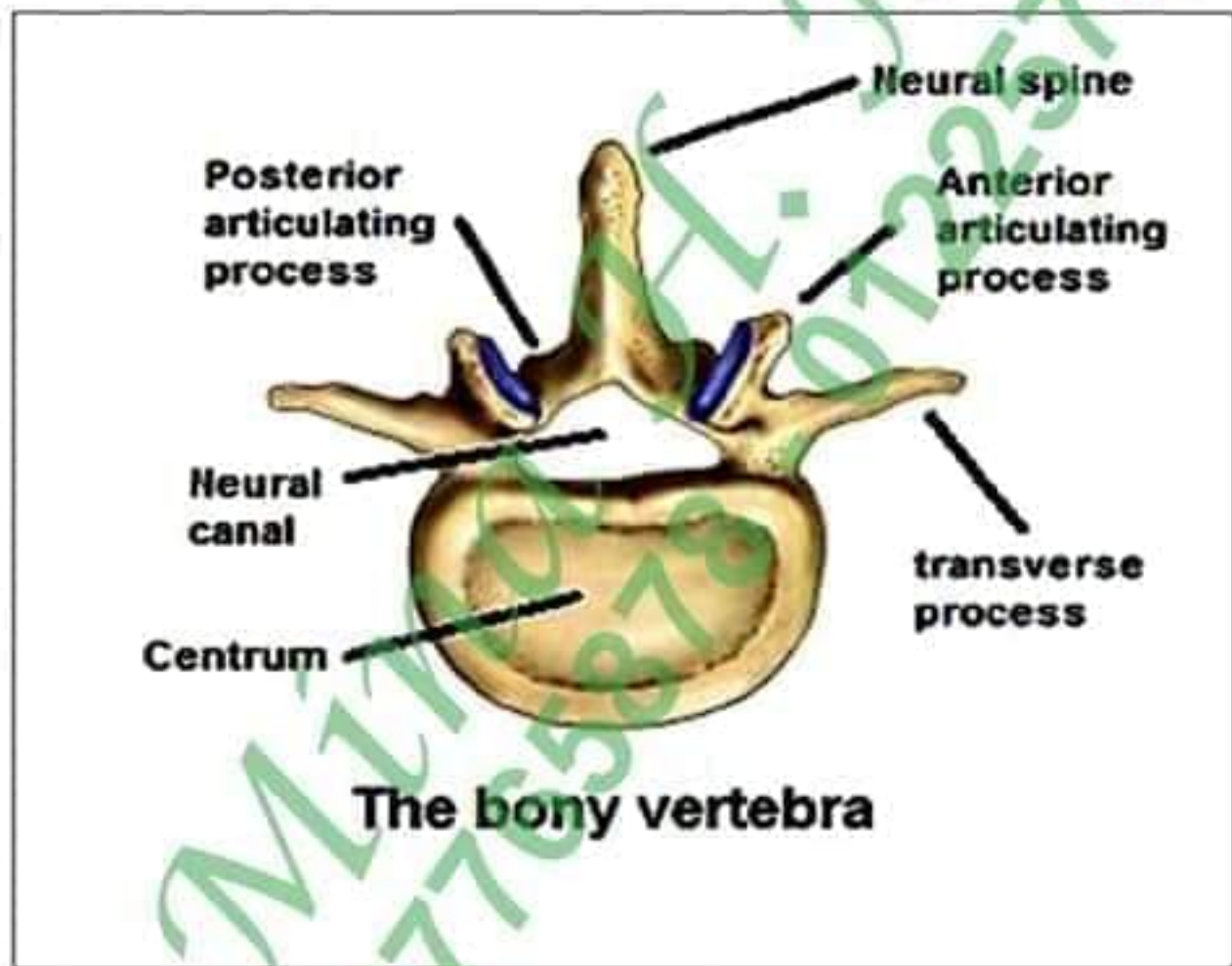
٢٤- ما أهمية الجينوم البشري في تحسين النسل؟

Improving the off-springs by identifying the defected genes of the fetus before its born & how to be cured (Known as gene therapy)

26-Draw:-

26- Draw a labelled diagram for the structure of human vertebra

٢٦- وضح بالرسم فقط كامل البيانات تركيب الفقرة العظمية في الإنسان.



27-The given figure :-

27- "The given figure represents the primary and secondary immune response" answer the following questions:

٢٧- يوضح الشكل التالي الاستجابة المناعية الأولية والثانوية. في ضوء ذلك أجب عن الآتي،

تركيز الأجسام المضادة في سوائل الجسم
concentration of antibodies in the body fluids



- Name the cells responsible for antibodies formation in 1st and second infection?
- In which curve symptoms appear? Why?

أولاً: ما اسم الخلايا المسؤولة عن تكوين الأجسام المضادة في التعرض الأول والتعرض الثاني؟
ثانياً: في أي منحنى ستظهر أعراض المرض؟ ولماذا؟

- In the 1st infection: B – Lymphocytes while the 2nd infection: Memory B- cells
- The curve of the first infection , As the first response takes a longer time since the Lymphatic cells need time to multiply , So it takes five to ten days to reach its maximum productivity of B & T cells , During this time , the infection could be wide spread & the symptoms of the disease appear

28-Give reason :-

28- Choose (A) or (B) then, give reason.

- Two twins may be identical in shape and sex?
- The coil is used in birth control?

٢٨- اختر أحد السؤالين (أ) أو (ب) ثم علل ،
(أ) قد تتطابق بعض التوائم في الشكل والجنس.
(ب) يستخدم اللولب لمنع الحمل.

(A) It is a case of identical twins (monozygotic) , as one mature ovum is fertilized by one sperm then after implantation in the endometrium → separation of cells (resulting from the zygote) into 2 masses having the same whole genome as they 2 masses came from one female gamete & one male gamete each mass develops into independent embryo have the same sex & genetically identical

(B) As it prevents the fertilized ovum to be implanted in the endometrium of the uterus so, pregnancy doesn't occur & menstruation takes place

29-Choose :-

29- Choose the correct answer:

The stimulation maturity of lymphoid stem cells to T- cells and their differentiation into different types takes place inside the.....

- (a) Bone marrow
- (b) Spleen
- (c) Thymus gland
- (d) Tonsils

٢٩- اختر الإجابة الصحيحة فقط ،

يتم تحفيز نضج الخلايا الليمفاوية الجذعية إلى خلايا تائية وتمييزها إلى أنواعها المختلفة في

- (أ) نخاع العظام.
- (ب) الطحال.
- (ج) الغدة التيموسية.
- (د) اللوزتين.

-Thymus gland (C)

30-What is the effect of calcium level:-

30- What is: the effect of calcium level decreases in blood concerning the muscles work?

٣٠- ما تأثير هبوط نسبة الكالسيوم في الدم على عمل العضلات؟

It will lead to painful convulsions & muscle spasm due to increasing the excitability of the nervous system

31-Choose :-

31- Choose the correct answer:

The reproductive floral whorls in the flower are

- (a) Androecium & calyx
- (b) Androecium & corolla
- (c) Androecium & gynoecium
- (d) Gynoecium & calyx

٣١- اختر الإجابة الصحيحة فقط ،

محيطات الزهرة الخاصة بالتكاثر هي

- (أ) الطلع والكأس.
- (ب) الطلع والتويج.
- (ج) الطلع والمئاع.
- (د) المئاع والكأس.

-Androecium & gynoecium (C)

32-Write the scientific term:-**32- Write the scientific term:**

A particular sequence of nucleotides in DNA is transcribed to a complementary sequence in triplet on mRNA.

٣٢- اكتب المصطلح العلمي الدال على :

تتابع النيوكليوتيدات في ثلاثيات على mRNA والتي تم نسخها من أحد شريطي DNA .

-The genetic code

33-Write the name of the produced disease :-**33- Write the name of produced disease from each of :**

- Acute decreases the secretion of thyroxin hormone In adults
- Increases the secretion of thyroxin hormone.

٣٣- اكتب اسم المرض الذي ينتج عن كل من :

- (أ) النقص الحاد في إفراز هرمون الثيروكسين في البالغين.
- (ب) الزيادة في إفراز هرمون الثيروكسين.

-Myxedema

-Exophthalmic goiter (Hyperthyroidism)

34-What is the role :-**36- What is the role of umbilical cord for human embryo?**

٣٦- ما الدور الذي يقوم به الحبل السري أثناء تكوين جنين الإنسان؟

- It connects the embryo with the Placenta
- Its length is about 70 cm & increases to give more freedom for the motility of the embryo
- The umbilical cord is a tissue rich in blood vessels which transfer digested food , vitamins , water , salts & O_2 from the placenta to the embryo and the excretory wastes & CO_2 from the embryo to the placenta

35-Compare between:-

34- Choose (A) or (B) then, compare between:

(A) The granulated white blood cells

(concerning types and distinguishing, between them)

(B) Tonsils & The spleen

(concerning the site – immune function)

٣٤- اختر أحد السؤالين (أ) أو (ب)

ثم قارن بين :




(أ) خلايا الدم البيضاء المحببة من

حيث (أنواعها والتعريف بينها).

(ب) اللوزتان والطحال من حيث

(المكان والوظيفة المناعية).

(A)

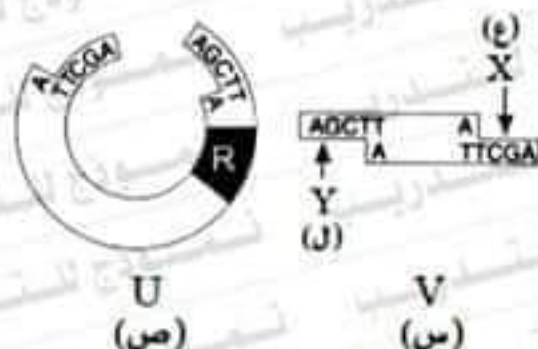
P.O.C	Basophils	Eosinophil's	Neutrophils
Types			
	-Basal cells contain Basophilic granules blue in colour	-Acidic cells contain Eosinophilic granules red in colour	-Neutral cells containing neutrophilic granules
Distinguish Bet. them	Distinguished from each other under microscope by their size shape of nucleus & the color of granules inside them		

(B)

P.O.C	Tonsils	Spleen
Site	Two on both sides of the rear portion of the mouth	Located in the upper left side of the abdominal cavity
Function	Pick up any microbe or foreign body that may enter with food or air & prevent its entry into the body ,&thus works to protect the body	Contain a lot of W.B.Cs called Macrophage which engulf foreign bodies (microbes or senescent somatic cells as the senescent red blood cells &disintegrate it to its components to be disposed by the body Contain other W.B.Cs called Lymphocytes

36-The given figure:-

35- The given figure V&U represent two different parts of DNA after treatment with special enzyme



1st : i. Name the enzyme.

ii. Name each of (X & Y).

2nd: What is the name of enzyme which stick (V&U)? what is the name of produced DNA?

٣٥- هي الشكل التالي ،
س. ص يمثلان جزأين
مختلفين من DNA بعد
معامليهما بأنزيم خاص.

أولاً : ١- ما اسم هذا الأنزيم ؟
٢- بم يسم كل من (ع) ، (ج) ؟
ثانياً : اذكر اسم الأنزيم الذي يعمل
على لصق (ص) بـ (ص) ،
وما اسم DNA الناتج ؟

1st:

i) The same restriction endonuclease enzyme

ii) Staggered ends or Sticky ends

2nd: DNA ligase enzyme Recombinant DNA

37-Write the scientific term :-

37- Choose (A) or (B) then, Write the scientific term:

(A) Flowers may be grouped on the floral axis into various aggregations

(B) Hormone inhibits ovulation and stimulates the maternal mammary glands to develop gradually during fertilization of ovum.

٣٧- اختر أحد السؤالين (أ) أو (ب) ثم
اكتب المصطلح العلمي الدال عليه ،
(أ) تنظيمات متنوعة تتجمع فيها
الأزهار على المحور الزهري .
(ب) هرمون يعمل على منع التبويض وينبه
الغدة الثديية على النمو التدريجي في
حالة إخصاب البويضة .

(A) Inflorescence flowers

(B) Progesterone

38-Give reason:-

38- Choose (A) or (B) then, give reason:

- (A) The two nucleotide strands of the DNA molecule had to run in opposite directions
- (B) DNA is replicated (duplicated), Before a cell divides.

٣٨- اختر أحد السؤالين (أ) أو (ب) ثم

علل ،

(أ) لسبب أن جزيء DNA يكون

أحدهما في وضع معاكس للآخر.

(ب) تتضاعف كمية DNA قبل

أن تبدأ الخلية في الانقسام.

(A)

To form the most stable combination of Hydrogen bonds between the two DNA strands as the presence of free 5' Phosphate groups of the two strands at opposite ends of the molecules .

(B)

So that each new cell receives a complete copy of the genetic information as "in the original cell "identical copies of chromosomes and the genes" where the two strands of a DNA molecule have complementary base pairs, the nucleotide sequence of each strand automatically supplies the information needed to produce its partner

39-Mention the importance:-

39- Choose (A) or (B) then, mention the importance:

- (A) The micropyle in ovum
- (B) The micropyle in seed

٣٩- اختر أحد السؤالين (أ) أو (ب) ثم

وضح أهميته ،

(أ) نقيير البويضة.

(ب) نقيير البذرة.

(A)-

It is a minute pore via which fertilization of the ovule happens "double fertilization phenomenon" as it allow the 2 male nuclei to pass inside the ovule

(B)- Allow water to get into the seed during germination

40-Choose:-**40- Choose the correct answer:**

The receptacle may share in fruit formation as in.....

- (a) Pea
- (b) Pomegranate
- (c) Bean
- (d) Apple

٤٠- اختر الإجابة الصحيحة فقط ،

يشترك التخت في تكوين الثمرة في.....

- (أ) البسلة
- (ب) الرمان
- (ج) الفول
- (د) التفاح

-Apple (D)

41-What would happen if:-**41- What would happen if.....?**

Exposure of the vascular system of a plant to cut or to invasion of pathogens.

٤١- ماذا يحدث عند.....؟

تعرض الجهاز الوعائي في نبات ما للقطع أو الغزو من الكائنات الممرضة.

It will lead to overgrowth of the protoplasm of the adjacent living parenchyma cells which protrude into the plant vascular system (xylem vessels & tracheid's) forming tyloses through pits to obstruct the movement of pathogens to the other plant parts

42-Explain :-**42- Explain:**

Reproduction by spores has several advantages.

٤٢- هسرمأيلي ،

التكاثر بالجراثيم له عدة مميزات.

due to :

1-Quick propagation

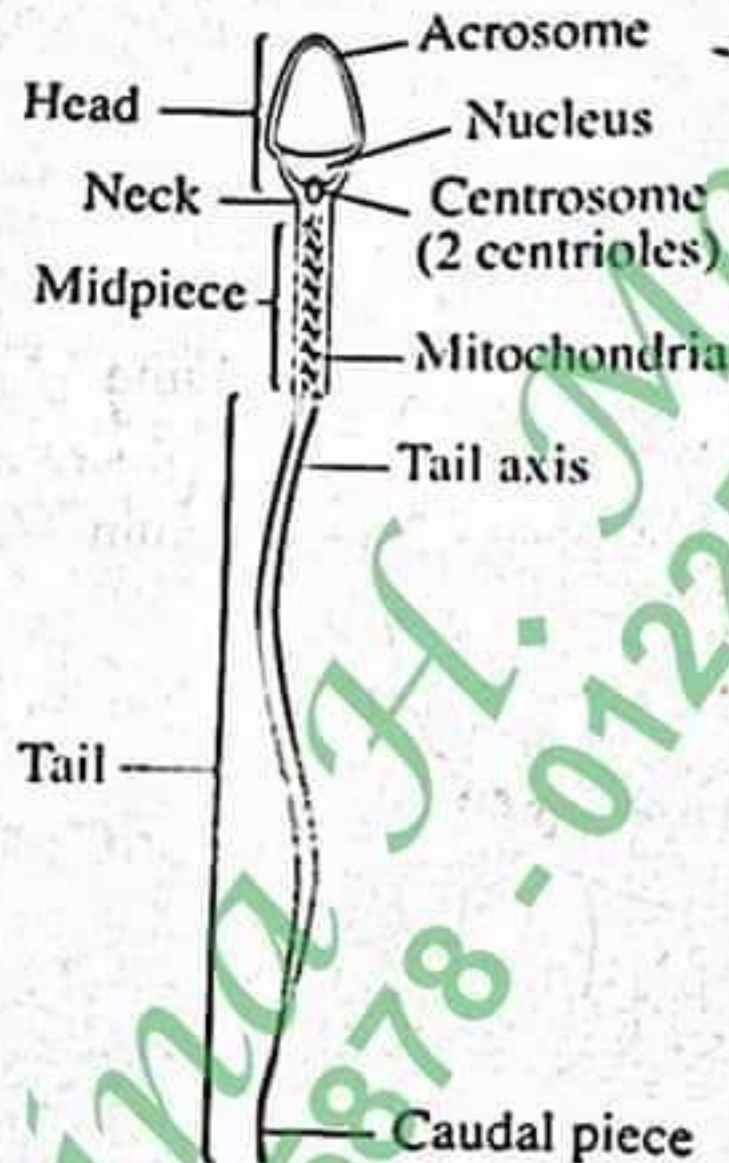
2-tolerance to hard conditions

3-Wide spread for long distances (distribution to distant regions)

43) Draw :-

43- Draw a labelled diagram for the structure of sperm.

٤٣- وضع برسم كامل البيانات
تركيب الحيوان المنوي.



44-The given figure:-

44- The given figure represents the knee joint , answer:

1st: What are the characteristics of structures from (1-4)?

2nd: What type of joint in this figure?, what is the type of motion in it?

١١- يوضح الشكل التالي مفصل الركبة.

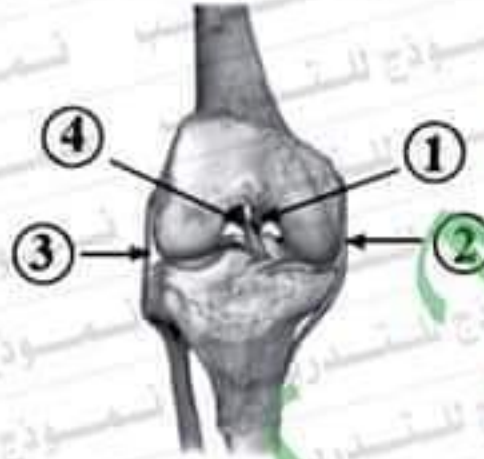
في ضوء ذلك أجب عن الأسئلة الآتية ،

أولاً : ما هي مميزات التراكيب

من (١) إلى (٤) ؟

ثانياً : ما نوع هذا المفصل ؟

وما نوع الحركة به ؟



1st : They all ligaments which are fibrous connective tissue characterized by strong durability & a presence of a degree of elasticity which allow a little increase of their length in order not to rupture due to external pressure and movement

2nd : Synovial joints

Limited movement → moves in one direction

45-Answer the following :-

45- If the sequence of nucleotide on mRNA as the following :

٤٥- إذا كان تتابع النيوكليوتيدات على شريط mRNA كالتالي :

5'.... AUG GCU CCA AAA CCA GCU UGA 3'

answer the following:

أولاً : ما عدد أنواع tRNA المستخدمة في ترجمة هذا التتابع؟

i. How many tRNA types which used to translate this sequence?

ثانياً : اكتب تتابع النيوكليوتيدات في شريط DNA الذي يتم نسخه من mRNA مع ذكر اسم الأنزيم المستخدم.

ii. Write the DNA sequence which formed from mRNA. Name the used enzyme?

ثالثاً : اكتب تتابع النيوكليوتيدات على الشريط المكمل لشريط DNA السابق.

iii. Write the nucleotide sequence to the complementary strand of the previous DNA .

i) 4 Types of t-RNA

ii) 3'... TAC CGA GGT TTT GGT CGA ACT ... 5' - Reverse transcriptase

iii) 5'... ATG GCT CCA AAA CCA GCT TGA ... 3'

