

1. (one mark)
** The student should answer one question only (A) or (B).

A) Recombinant DNA page (145)
b) Deoxyribonuclease page (114)

2. (one mark)
** The student should answer one question only (A) or (B).

A) The tendril raises itself into the air and is likely to make contact with a solid object. It immediately twines closely around the object for a few turns in a spiral form. Its length decreases, and so the plant stem approaches the support, and grows vertically. Then the tendril becomes thickened. (page 13)

B) Change its permeability so, the sodium ions pass through the membranc Causing depolarization (+ve inside and -ve outside) this leads to muscle contraction. (page 18)

3. (one mark)
** The student should answer one question only (A) or (B).

A) To control the sex of farm aimals newborn. Since it is possible to separate the sperms with (X) chromosome from sperms with (Y) chromosome. This aims to apply such techniques first on cattle to produce only males or females. Page (75)

B) Where they lost most of its cytoplasm. The body becomes pointed and provided with a locomotory tail or flagellum to help transport. (page 62)

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النموذج (ب)

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4. (one mark)
First: tissue culture page(45)
Second: test tube babies page(73)

5. (one mark)
(d) Production of Phenols (page 87)

6. (one mark)
Transfer RNA (tRNA), (page 135)
function: which carries amino acids to the ribosomes..

7. (two marks)
First:
5' ... AUGGGCUUGUAAGGUAAG ... 3'
(page 134)

- Second:
Three amino acids (page 136)

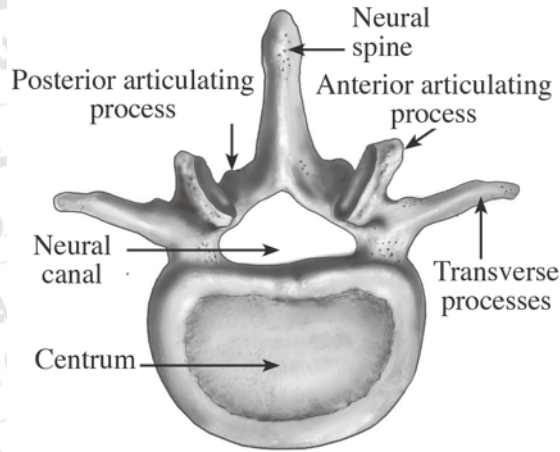
The reason: The presence of stop codon UAA which binds with releasing factor causes the mRNA to leave the ribosome. (page 139)

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النموذج (ب)

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8.

(two marks)



The bony vertebra

Drawing (½ mark)

(any right 3 labels are enough) (1 ½ marks)

page (7)

9.

(two marks)

First:

(2) Antigen binding site

(half mark)

(3) Disulfide bonds

(half mark)

Second:

The specificity of the antibody is determined by the conformation of amino acids (their sequence, types and spatial shape...etc) at the antigen- binding site.

(one mark)

Page (96)

10. (one mark)

** The student should answer one question only (A) or (B).

A) acetabulum (page 9)

B) Sarcoplasm (page 16)

11. (one mark)

** The student should answer one question only (A) or (B).

A) It represent one of component of first line of defense, where the epithelial lining of the stomach produces and secretes the strong hydrochloric acid that can kill microbes entering with food.

(page 100)

B) Tyloses are overgrowths of the protoplast of adjacent living parenchymatous cells which protrude into xylem vessels and tracheid through pits. They formed as the result of exposure of the vascular system to cut or to invasion of pathogens, to obstruct the movement of these organisms to the other parts of the plant.

(page 86)

12. (one mark)

** The student should answer one question only (A) or (B).

	Site	Function
A) sertoli cells	Inside of seminiferous tubules	secrete fluid to nourish the sperms inside the testis. It is supposed that, they gave also immunization function.
B) stigma	in the gynoecium at the end of style.	a sticky disc , where pollen grains adhere.

13. (one mark)

(b) fallopian tube . (page 63)

14. (one mark)

- This binding will help it to secrete protein called Lymphokines which suppress or inhibit the immune response or stop it.
- Therefore, plasma cells will stop producing antibodies and many of the T helper cells and the activated cytotoxic T-cells and B-cells will die, but some of them will be stored in the lymphatic organs.

(page 105)

15. (one mark)

Enzymes apparently cannot get at it. The package must be unwound at least into a string of nucleosomes before the DNA can serve as a template for DNA or RNA synthesis. . (page124)

16. (two marks)

First: No.3 : which play an important role in the fertilized ovum division. (half mark)

: No.4 : supply energy for sperm movment. (half mark)

Second (1) the hyaluronic enzyme (half mark)

Third: 23 chromosomes (N). (half mark)

(page 134)

17. (two marks)

First:
iodine deficiency causes a decrease of thyroxin hormone
Which causes simple goiter. (page 31)

Second:
The Liver: the breakdown of the glycogen into glucose, and
increase the sugar (glucose) level in the blood.

The heart: increase the speed and force of contraction of the
heart and increases blood pressure. (page 32)

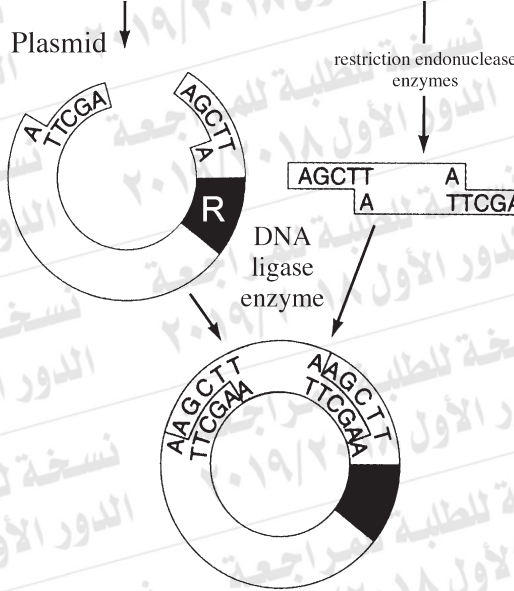
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18.

(two marks)

(1/2 mark)



(1/2 mark)

page (143)

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النموذج (ب)

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19. (one mark)

** The student should answer one question only (A) or (B).

A) Parthenogenesis

page (44)

B) Triple Fusion

page (52)

30. (one mark)

A) It has a definite orientation, with a free 3' hydroxyl group at one end and a free 5' phosphate group at the other end. Page(117)

B) Because the eukaryotic genomes contain great deal of other noncoding DNA. Remarkably little of the DNA of the plants and animals actually codes for proteins as salamander if compared to human Page(126)

21. (one mark)

** The student should answer one question only (A) or (B).

A) flowers may be grouped on the floral axis into various aggregations page(52)

B) leaves of the calyx are hardly differentiated from those of the corolla and so both whorls page(53)

22. (one mark)

(b) Asexually by schizogony giving several Merozoites. page (49)

23. (one mark)

- The body will use a third line of defense.
- That includes lymphocytes that respond to this by a series of specific defense mechanisms that resist the pathogen. Page (101)

24. (one mark)

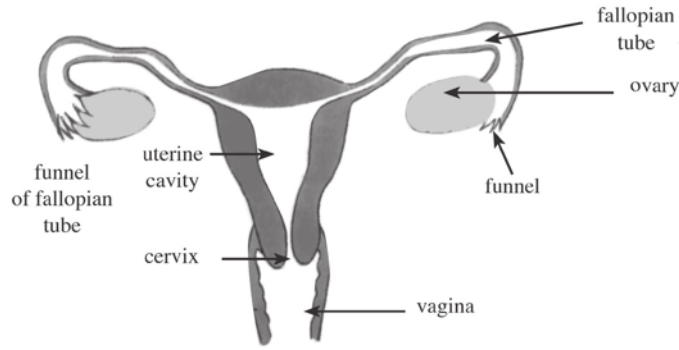
Human interstitial cells	interstitial cells in hydra
secrete the testosterone hormone. or secrete Androgens. page (60)	differentiation to a bud. This grows gradually to resemble the mother entirely. or asexual reproduction by budding. page(42)

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النموذج (ب)

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25.

(two marks)



Female genital system

Drawing

page(63)

(½ mark)

(three labels are enough) (1 ½ mark)

26.

(two marks)

First:

a: Actin (3).

b: myosin (4).

Second: sarcomere.

Third: the dark and light bands is not present in the smooth muscles.

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النموذج (ب)

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27.

(two marks)

First:

- Number of purine bases = (6)
- Number of twists = one

Second:

- 5.....TTA GGA CTC CAG.....3
- Polymerase enzyme

(p.118)

28. (one mark)
(d) Cytotoxic T-cells: (or killer T cell) (Tc) (page 44)

29. (one mark)

** The student should answer one question only (A) or (B).

A) To protect the bones from corrosion due to continues friction. (page 10)

B) This theory depends on the microscopic structure of the muscle fiber and then comparison between a muscle fiber in a state of contraction with another fiber in a state of relaxation. (page 18)

30. (one mark)
Phase of ovulation (page 67)

31. (one mark)
To convert their own RNA genomes into DNA that can be joined to hosts DNA genome (page 144)

32. (one mark)
The Structural immunity. (page 85)

33. (one mark)
First: (2n). (page 50)

Second: (n). (page 44)

34. (two marks)

** The student should answer one question only (A) or (B).

(page 89)

A	Bone marrow	peyer's patches
Site	inside the flat bones, and also the heads of the long bone.	aggregations spread to the mucous membrane lining the lower part of the small intestine
Function	the production of red blood cells, white blood cells, and blood platelets.	play a role in the immune response against pathogenic microorganisms that enter the intestine.
B.	(P.98)	
	Precipitation	Lysis
	This happens usually in the soluble antigens, in which the binding between antibodies and these antigens leads to the formation of insoluble antigen- antibody complexes, which form a precipitate, to facilitate its engulfing by phagocytes.	The binding between antibodies and antigens activates specific proteins and enzymes called complements to lyse the coats of antigens and dissolve their content, which makes them easily engulfed by phagocytes.

35. (two marks)

First:

- (1) Two hydrogen bonds (½ mark) page(118)
- (2) Three hydrogen bonds. (½ mark)

Second: because each pair consists of one single and one double ring, all the rungs of the ladder are the same width.

or a pyrimidine base with a purine base. (1 mark).

36. (two marks)

First:

It causes relaxation of pubis symphysis at the end of pregnancy to facilitate the process of delivery. Page (35)

Second: page (32)

It plays an important role in minerals balance in the body.

Ex: This hormone increases reabsorption of sodium and increases the excretion of excess potassium by the kidney.

37. (one mark)

** The student should answer one question only (A) or (B).

A) Zygosporangium remains dormant till the surrounding conditions improved. Page (48)

B) Because consumption of stored food and inhibition of hormones. Page (58)

38. (one mark)

B) DNA - Ligase enzyme Page (121)

39. (one mark)

The excessive spasm may leads to tear the muscle causing bleeding.

Page (20)

40. (one mark)

Detoxifying enzymes page (88)

41. (one mark)

During delivery:

Accelerate the birth of a baby by stimulating strong contractions of uterine muscles. In addition oxytocin stimulates the release of milk from mammary glands as a response of lactation. Page(29)

or During pregnancy: it may cause abortion or miscarriage.

42. (one mark)

First: The hands and eyes become differentiated..

Second: the heart is completed.

Third: the growth of body slows down, (p.69)

43. (two marks)

** The student should answer one question only (A) or (B).

A)

	primary immune response	Secondary immune response
Types of responded cells	The B - cells and the T - cells	memory cells
The time needed	between five to ten days	very fast

B)

page (106)

	Perforin	Interferons
The secreting cell	The cytotoxic T.cells (Tc)	produced by cells of tissues infected by viruses.
Function	they create pores in the membrane of the foreign body (microbe or cancer cells) page(105)	Function they bind to healthy cells neighboring to the infected cells and induce them to produce enzymes that inhibit the action of replication enzymes of the virus, thus preventing the virus nucleic acids from reproduction. page(94)

44. (two marks)

First:

5...AUG CCC GCG AGG UAA... 3

Start codon

(½mark)

(½mark)

(½mark)

stop codon, .. UAG ..or UGU

Second:

3 ... TAC GGGCGCTCC ATT ... 5 (½mark)

stop codon, ATC or ACA

page(134)

45. (two marks)

First:

- Connecting the embryo with placenta to give more freedom for the motility of the embryo pag(69)
- transfere digested food, vitamins, water salts and oxygen from the placenta to the embryo's circulation, and it transfers the excretory wastes and carbon dioxide from the embryo's circulation to the placenta.

Second:

- The corpus luteum remains to secrete the progesterone .The corpus luteum reaches to its maximum growth at the end of the third month of pregnancy. It starts to degenerate during the fourth month. page(67)