



Mock Exam Biology for 3rd Year Secondary



1) What is the importance of budding to yeast fungus?

- a) Producing new individuals that differ 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.

2) Which of the following distinguishes the reproduction of Bolti fish from rabbit reproduction?

- a) Site of embryo development.
- b) Type of division that forms gametes.
- c) Ova are smaller in size.
- d) Variation in genetic traits.

3) Which of the following cells can't synthesize proteins?

- a) Red blood cells.
- b) Nerve cells.
- c) White blood cells.
- d) Mast cells.

4) Which of the following tools can be used in cloning DNA segments by using one enzyme only?

- a) A Phage
- b) Plasmids
- c) PCR device
- d) mRNA molecule

5) Albinism results from a gene mutation in the "Tyrosinase" enzyme that synthesizes melanin pigment.

What is the technique that could be used to cure albino embryo at early stages of his/her embryonic development?

- a) Injecting the mother cells with "Tyrosinase" enzyme.
- b) Inserting the melanin-synthesizing gene inside the fetus' cells.
- c) Inserting mRNA for "Tyrosinase" enzyme synthesis inside the fetus cells.
- d) Injecting the embryo cells with melanin pigment.

6) Which of the following best describes Fallopian tube in a normal woman?

- a) Cilia of the tube move towards the ovary.
- b) End of the tube is wider than its beginning.
- c) Beginning of the tube is attached to the ovary.
- d) Cilia of the tube move towards the uterus.

7) What is the case that could be treated by the test tube babies' technique?

- a) Absence of cilia from the Fallopian tube.
- b) Removal of the mother's uterus.
- c) Reaching the age of menopause.
- d) Removal of the two ovaries.

8) Which of the following stages of human embryonic development has the highest rate of DNA duplication in the embryo cells?





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9) 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.

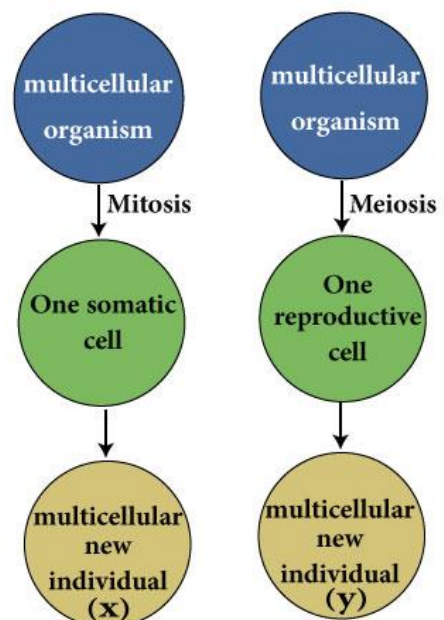
10) Which of the following organisms when its genetic material is exposed to x-ray diffraction gives the following results "the nitrogenous bases are perpendicular to one of sides of a single sugar-phosphate backbone"?

- a) Bacteriophage.
- b) *Escherichia coli* bacteria.
- c) Poliomyelitis virus.
- d) (S) strain of Pneumonia bacteria.

11) Which of the following DNA damages can be repaired by DNA repair enzymes?

- a) A damage in a purine base in a DNA rung.
- b) Removal of a DNA rung.
- c) A damage in an influenza virus gene.
- d) Breaking of hydrogen bonds between base pairs.

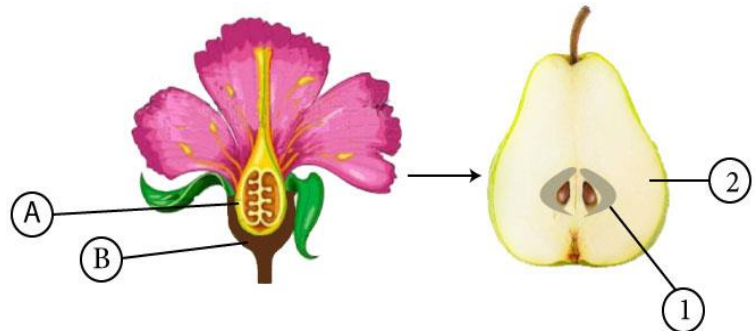
12) Study the diagram of asexual reproduction in two different species of living organisms, and then deduce:



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.

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)



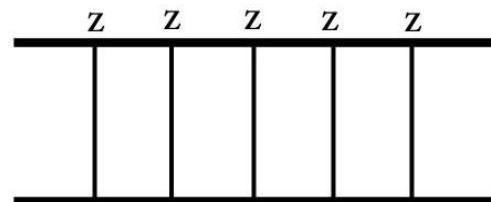
Which of the following best describes the produced fruit?

- 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) 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.

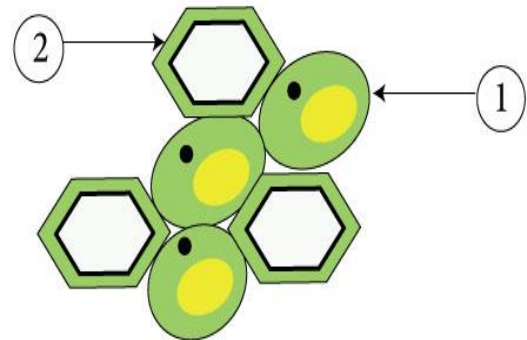
15) The opposite figure represents a myofibril of a skeletal muscle



How many complete light bands are shown in the figure?

- a) 3
- b) 4
- c) 5
- d) 6

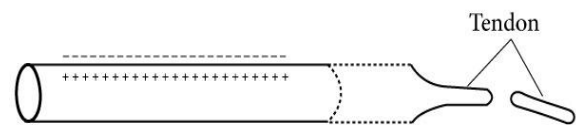
16) The opposite figure shows some of a pear fruit cells.



Which of the following best describes the cells of this fruit number (1) and (2)?

- a) Cells (1) & (2) support cannot be lost.
- b) Cell (1) is supported by water, but cell (2) is supported by a hard substance.
- c) Cells (1) & (2) lose their support when temperature increases.
- d) Cell (1) has a permanent support, but cell (2) has a temporary support.

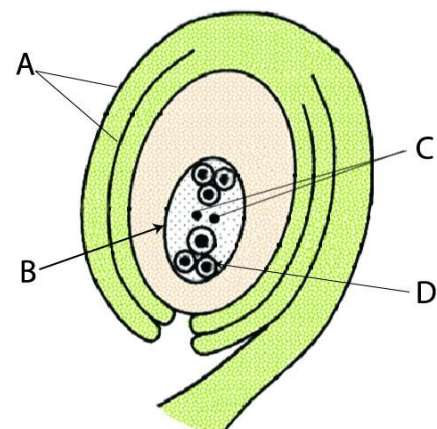
17) The drawing illustrates a muscle fiber.



What does this drawing indicate?

- a) Contraction without movement at the joint.
- b) Relaxation without movement at the joint.
- c) Contraction with a normal movement at the joint.
- d) Polarization without movement at the joint.

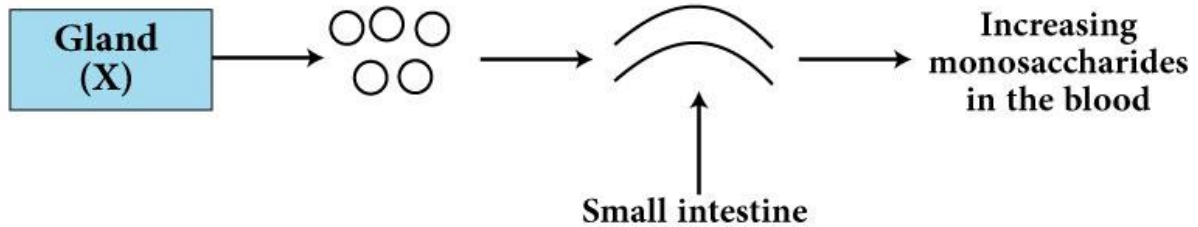
18) The opposite figure illustrates a part of a mature ovary in a flowering plant.



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

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

19) Study the diagram that illustrates the activity of one of endocrine glands in human then conclude:



What is the factor that affects the activity of this gland shown in the diagram?

- Availability of iodine in the food.
- Availability of calcium in the food.
- Decreasing in calcium level in the blood.
- Increasing in the basal metabolic rate.

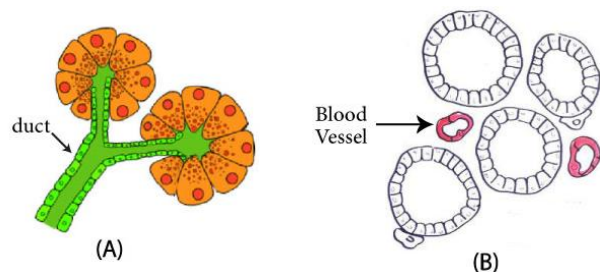
20) Study the table that illustrates the three immune mechanisms (X), (Y) and (Z) that take place in plant cells, and then determine:

The substance	Before infection	After infection	Its purpose
X	✓	✓	Stimulation
Y	X	✓	Detoxifying
Z	✓	✓	Inhibit growth

What is the correct arrangement for the three mechanisms X, Y and Z?

- Receptors – antimicrobial proteins – glycosides.
- Glycosides – antimicrobial proteins – receptors.
- Antimicrobial proteins – glycosides – receptors.
- Receptors – glycosides – antimicrobial proteins.

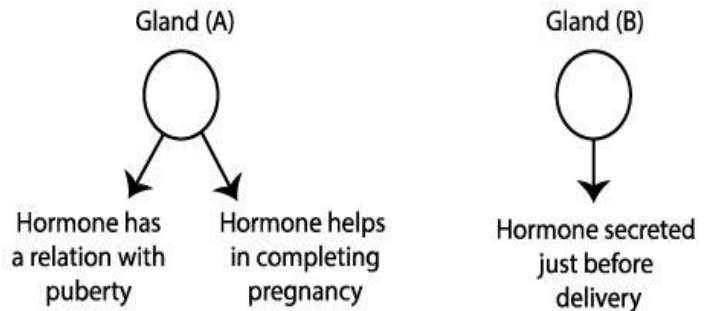
21) The figure illustrates two types of glandular cells in the human body.



What distinguishes the gland (A) from the gland (B)?

- Secretes hormones.
- Controls blood sugar level.
- Controls the metabolic rate.
- Secretes digestive enzymes.

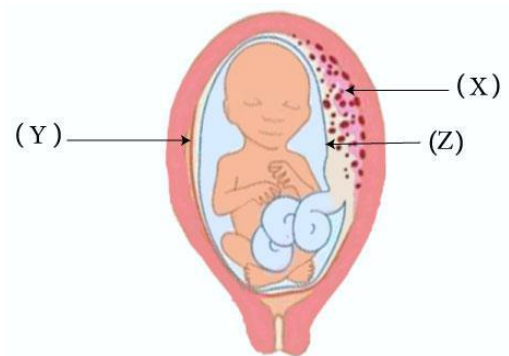
22) Study the following diagram, then determine.



What distinguishes the cells of the gland (A) from the cells of the gland (B)?

- a) Permanent endocrine cells.
- b) Secreting nerve cells.
- c) Temporary endocrine cells.
- d) Permanent exocrine cells.

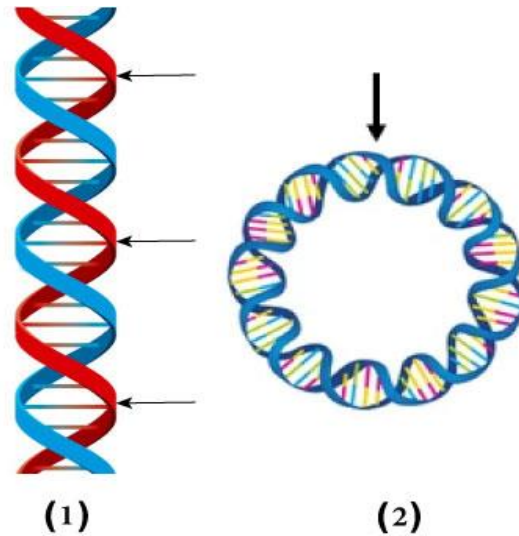
23) Notice this figure that illustrates a human embryo inside the uterus of the mother, identify the structures (X, Y and Z) then conclude:



In which of the embryo development stages the structure (X) will separate from the uterine wall?

- a) The third month of the third stage.
- b) The third month of the second stage.
- c) The second month of the third stage.
- d) The second month of the second stage.

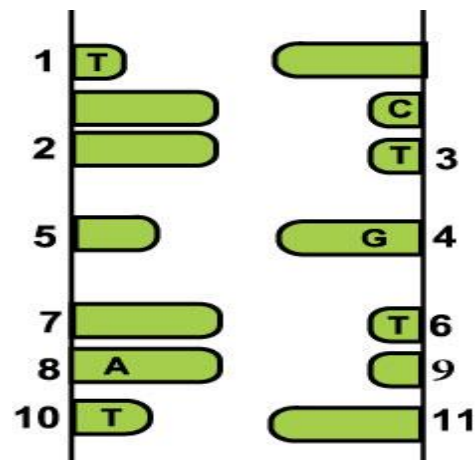
24) Study the opposite drawing that illustrates two forms of DNA molecules numbered (1) and (2) in which the arrows refer to the regions where the same biological process occurs and then conclude:



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

- End product of the process.
- Types of enzymes used.
- Purpose of the biological process.
- Start point of the process.

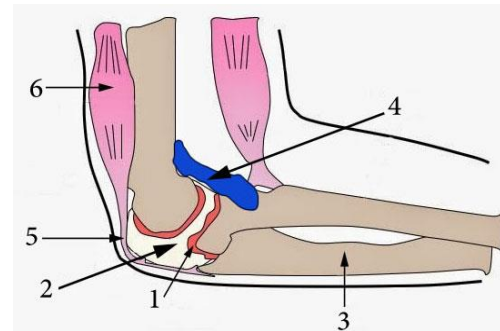
25) In front of you a segment of a DNA molecule.



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

- The nucleotide (4) instead of (2).
- The nucleotide (2) instead of (11).
- The nucleotide (11) instead of (8).
- The nucleotide (8) instead of (7).

26) Study this figure, which illustrates one of human body joints and then conclude:



What is the expected result of the absence of the substance (2)?

- Difficulty of movement at the joint.
- The thickness of the tissue number (1) increases.
- The joint becomes immovable.
- The joint movement is not affected.

27) When a strawberry plant which produces small – sized fruits is self-pollinated, it produced large sized fruits.

What is the reason for this case?

- Segregation of factors during meiotic division.
- Changing the position of the size gene on the chromosome.
- Segregation of genes during mitotic division.
- Non-separation of chromatids after centromere division.

28) Examine the picture that illustrates the formation of embryos inside a female uterus, and then determine:



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

- 1-1
- 1-2
- 2-2
- 2- 1



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29) Which of the following features distinguishes r-RNA from both t-RNA and m-RNA in eukaryotes?

- a) The site of its transcription.
- b) The multiple copies of its genes.
- c) The site of performing its action.
- d) Its building units.

30) Which of the following describes the changes that may occur in the arm muscle of a person who carries a heavy bag during ascending stairs?

- a) Increasing (ATP) amount in the muscle cells.
- b) Shortage of stored glycogen in the muscle cells.
- c) Shortage of calcium ions needed to form transverse links.
- d) Shortage of the amount of neuro-chemical transmitters.

31) What distinguishes the RNA polymerase enzyme from DNA polymerase enzyme?

- a) Types of purines in the nucleotides of the new strand.
- b) Direction of addition of the new strand nucleotides.
- c) Type of sugar in new strand nucleotides
- d) Presence of more than one type of the enzyme in prokaryotes.

32) If the menstruation occurs to a woman in the first day of the month and she wanted to use contraceptive pills.

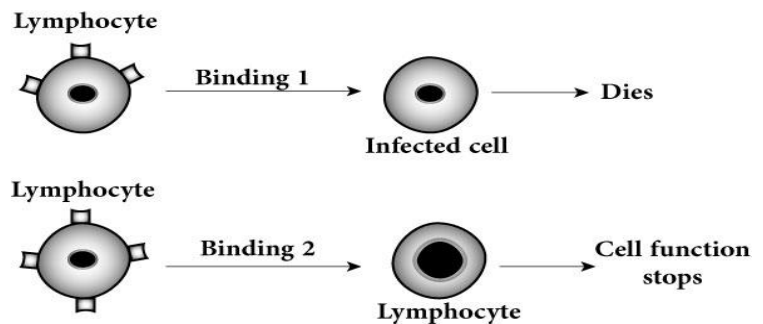
Which day of this month this woman could begin taking the pills?

- a) 1st
- b) 5th
- c) 7th
- d) 14th

33) Which of the following immune methods precedes the other one in its occurrence?

- a) Increasing the number of receptors – Formation of the cell wall.
- b) Deposition of gum – Thickening of the stem epidermis by cutin.
- c) Thickening the cell wall by lignin - Producing antimicrobial proteins.
- d) Producing detoxifying enzymes – Swelling of the cell wall.

34) The figure illustrates the role of two types of lymphocytes. Study it and answer.



What substances are produced from 1 & 2 respectively?

- Complements, Interleukins.
- Lymphatic toxins, lymphokines.
- Interleukins, complements.
- Perforin, cytokines,

35) Study the opposite figure then answer.

What is the effect of inhibition of auxins in this plant during this stage of its growth?

- Forming fruits without seeds.
- Wilting of fruits.
- Stopping the vegetative growth.
- Wilting and death of the plant.

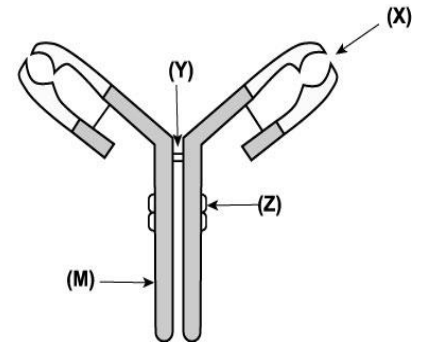


Tree with a fully ripe fruits

36) A person feeds on large quantities of carbohydrates in his /her meals
What is the consequence of eating these quantities?

- Deposition of fats inside liver cells.
- Conversion of glycogen into glucose.
- The person becomes very slim.
- Decrease of fats inside the muscle cells.

37) Study this figure that illustrates one of the components of human blood, recognize (X, Y, Z, M) then conclude.



What is the chemical structure of the substance, which forms part (Z)?

- Sulphur.
- Sugars.
- Proteins.
- Steroids.

38) What is the result of removing the spleen?

- Decreasing the number of memory cells in blood.
- Increasing the number of senescent red blood cells.
- Inability to produce anti-bodies.
- Inability of thymus gland to differentiate the lymphocytes.

39) Which of the following immune substances doesn't play a role in curing hepatic cells of virus (C)?

- Interferons.
- Histamine.
- Lymphatic toxins.
- Antibodies.

40) Which of the following immune responses doesn't indicate precisely to the species of the pathogen that causes the infection?

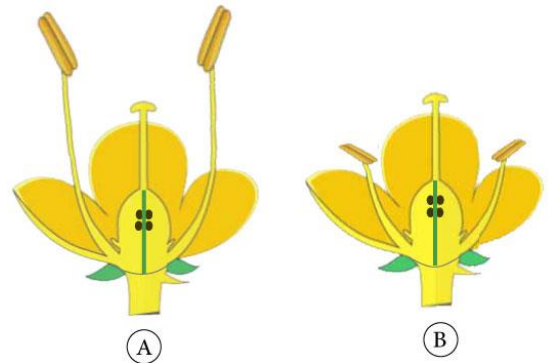
- Antibodies.
- Interferons.
- Plasma B cells.
- Cytotoxic T cells.

41) Which of the following organisms produce their female gametes by mitosis?

- Star fish and aphid insect.
- Polypodium* and starfish.
- Polypodium* and malaria parasite.
- Queen bee and aphid insect.

42) What is difference between the two flowers (A) and (B)?

- Type of pollination.
- Sex of the flower.
- Number of pollen sacs.
- Number of ovules.



43) “When doing a blood analysis for a person, a species of bacteria was found in the blood sample.

Which immune cells are responsible for protecting this person?

- Natural killer cells.
- Plasma B cells.
- Memory T cells.
- Cytotoxic T cells.

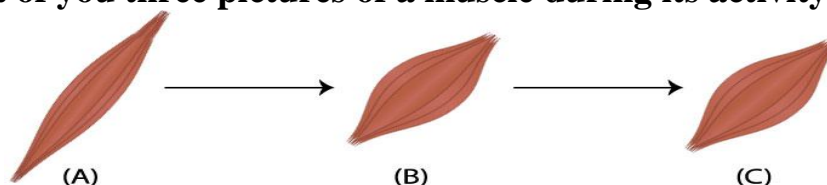
44) Which of the following substances is not considered from the components of the third line of defense?

- Cytokines.
- Interleukins.
- Interferons.
- Lymphokines.

45) What is the consequence of non-deposition of cutin on the epidermis of the plant leaves?

- The plant loses its strength and hardness.
- The plant is protected from microbial invasion.
- The plant gains its physiological support.
- The plant cells lose their turgidity.

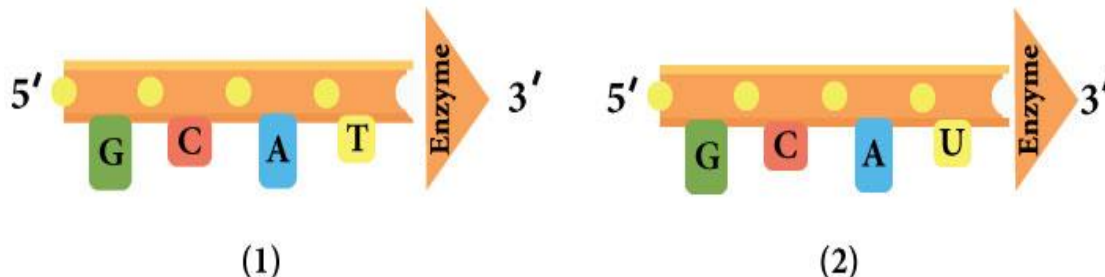
46) In front of you three pictures of a muscle during its activity.



What is the reason for the no change in the state of the muscle from (B) to (C)?

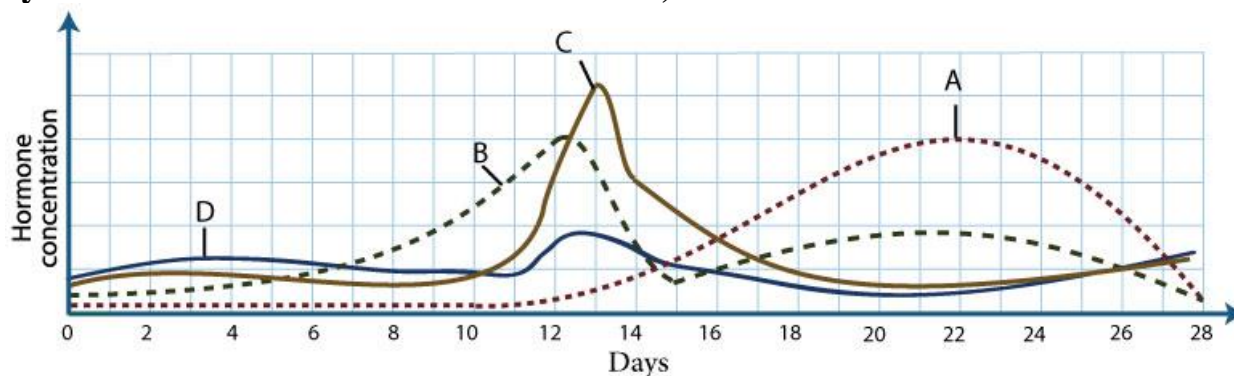
- Separation of the transverse links from actin.
- Accumulation of lactic acid.
- Increasing the production of ATP molecules.
- The arrival of insufficient amounts of O₂ to the muscle.

47) Study the opposite figure that illustrates two processes that occur inside the cells of living organisms and then conclude:



Where the two processes number (1) and (2) occur inside the cells of living organisms?

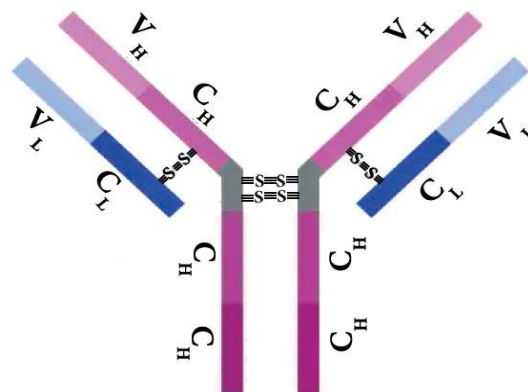
48) Study the provided graph that illustrates the changes in the concentration of four hormones (A, B, C and D) during the menstrual cycle of a human female and then deduce,



a) Explain how the change in the concentration of hormone (B) affects the change in the concentration of hormone (C) during the days (10-12) of the cycle?

b) When will the significant increase in the concentration of hormone (C) on day (13) of the cycle have an effect on the ovary activity? Explain your answer.

49) Study the opposite figure then conclude,



a) What are the types of chemical bonds that are present in the region V_H ?

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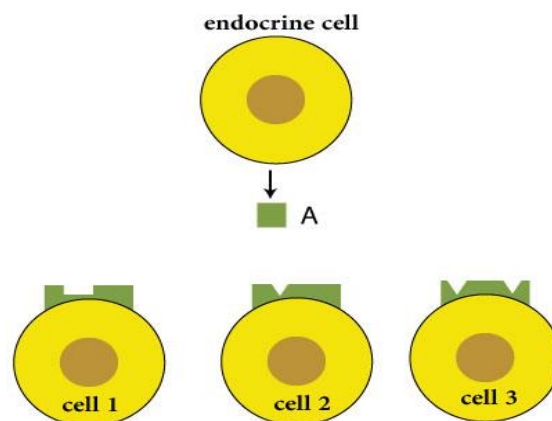
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b) What are the building units that share in the formation of disulphide bonds between the two heavy chains of the molecule?

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50) Study the opposite figure then answer:



a) What is the possible chemical structure of the compound lettered (A)?

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b) Which of the three cells (1, 2 and 3) might secrete a hormone when compound (A) reaches it? Explain your answer.

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Best Wishes of Luck and Success