This is a Class 1 exam

Lebanon Evangelical School for Boys and Girls

Lebanon Evangelical School
for Boys and Girls Loueizeh - Baabda

Stage Exam 03

16MAY2025

Do NOT write in this box. Your MARK will be placed here.

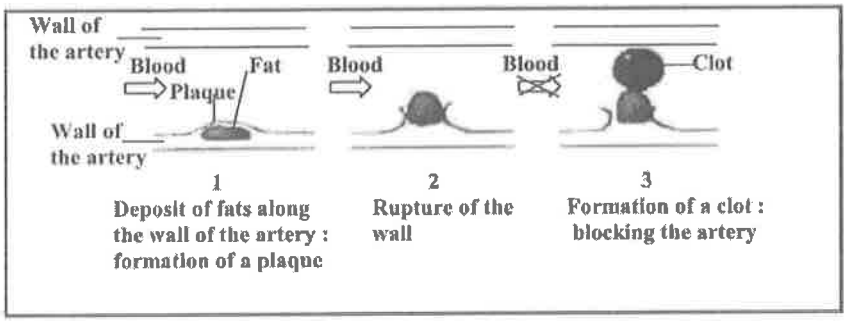
Subject :	Biology
Class :	9B, 9C and 9E
Teacher :	Mrs. Rita Bekeredjian
Duration :	1 hour
You are to answer the questions to this exam on : Lined paper	

Your name :		*Time taken to complete exam*
Your Class :		
Exam Room :		
How many sheets, including cover sheet :		

- Do not open this paper until the teacher in charge instructs you to do so.
- The most important thing to remember in taking an exam is NEVER PANIC.
- If you are caught cheating in this exam, you will be awarded zero for ALL exams that are taken on this day.

Exercise 1 (5pts)

The heart, motor of circulatory system, is a richly irrigated organ. It possesses blood vessels called coronary vessels : arteries and veins. The blood circulating in the coronary arteries supplies the heart with oxygen gas and glucose, necessary for its functioning.
When a coronary artery is blocked after the formation of a clot, below **document,** the cardiac activity is disturbed and a myocardial infarction may occur.



1- Pick out from the text and the document:
   a- The substances necessary for the functioning of the heart. (1 pt)
   b- The steps that lead to the blockage of the coronary artery. (1.5 pts)
   c- The effect of the blockage of this artery on the cardiac activity. (1 pt)
2- Knowing that energy is necessary for the contraction of the cardiac muscle, explain why the failure in the supply of oxygen gas and glucose in this muscle may be the origin of a cardiac infarction. (1.5pts)

Exercise 2 (9.5pts)

The drosophila is an insect used by an American geneticist, T. Morgan, as genetic experimental material at the beginning of the XX century.

Pure breed drosophilae normal round eyes are crossed with drosophilae having bar shaped eyes. All the members of the F1 generation are of normal eyes.

a. Specify the dominant allele. (2 pts)

b. Designate the symbols of the corresponding alleles. (2 pts)

c. Indicate the genotypes of the parents and that of F1. (1.5pts)

We cross the individuals of F1 among each other and obtain a second generation F2.
d. Make a factorial analysis to find the phenotypes and the genotypes of the F2 generation and their proportions. (4 pts)

Exercise 3 (2 pts)

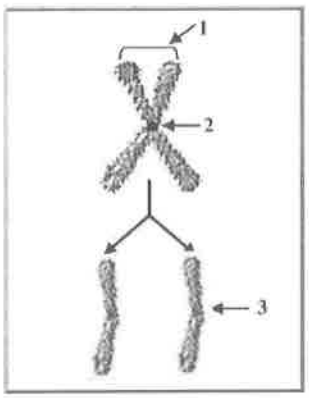
The following table shows the characteristics of two big blood vessels leaving the lower part of the heart.

	Vessel A	Vessel B
Diameter	around 2.5 cm	around 1.5 cm
Properties of the wall	thin	thick

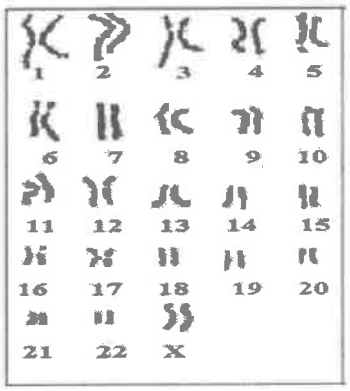
Name each of the vessels and justify your answer.

Exercise 4 (3.5 pts)

Refer to documents 1 and 2 and answer the following questions:



Document 1



Document 2

a- Label structures 1, 2 and 3 in document 1. (1.5 pts)

b- Indicate one criterion to arrange the chromosomes in a karyotype. (1 pt)

c- Identify the gender of the individual by referring to document 2. (1 pt)

Barem 9BCE SE03

Exercise 1

1-

a. Oxygen gas and glucose are the substances necessary for the functioning of the heart. (1 pt)

b. The steps are: (1.5 pts)

-Deposit of fats along the wall of the artery: formation of plaque.

-Rupture of the wall.

-Formation of a clot: blocking the artery.

c. Cardiac activity is disturbed, and a myocardial infarction may occur. (1 pt)

2- The decrease or stoppage in the supply of oxygen gas and glucose to the myocardium causes a decrease or stoppage in the production of energy necessary for its contraction. This decreases or stops the contraction of the muscle which may be the origin of myocardial infarction. (1.5 pts)

Exercise 2

a. The allele for normal eyes is dominant with respect to the allele for bar shaped eyes which is recessive (1pt) because all the members of the F1 generation have normal eyes like one of their parents. (1 pt)

b. Symbols of the alleles: (2 pts)
Let N be the symbol of the allele responsible for normal eyes which is dominant with respect to bar shaped eyes.
Let b be the symbol of the allele responsible for bar shaped eyes which is recessive.

c. Genotype of the parents: (1.5 pts)
Normal eyed parent: NN
Bar shaped eyed parent: bb
Genotype of F1: Nb

d. Factorial analysis: (1 pt)

F2: F1XF1	F_1 ♀	X	F_1 ♂
Phenotypes:	Normal eyes		Normal eyes
Genotypes:	Nb		Nb

Gametes and

	(N)	(b)	(N)	(b)
Percentages	50%	50%	50%	50%

Punnett Square/Table of cross: (1 pt)

♀ \ ♂	N	b
N	NN 25%	Nb 25%
b	Nb 25%	bb 25%

Genotypic proportions: (1 pt)

NN: 25%

Nb: 50%

bb: 25%

Phenotypic proportions: (1 pt)

N: Normal eyes 75%

b: bar shaped 25%

Exercise 3

Blood vessel A is a vein while B is an artery (1 pt) because blood vessel A has a thinner wall compared to that of B which is thicker, and the lumen of vessel B is smaller (around 1.5 cm) than that of vessel A (around 2.5 cm). (1 pt)

Exercise 4

a- 1- Chromosome (1.5 pts)
2-Centromere
3-Chromatid

b- Size of the chromosome or banding pattern or decreasing order of their length/size or position of the centromere. (1 pt)

c- Since the individual has two X chromosomes XX on the 23rd pair then the karyotype belongs to a female. (1 pt)