Date ....   Name .... Group ....

Lab report from the practical lesson on biochemistry

Topic: **Biochemical examination of diabetes mellitus**

Task 1: Estimation of glycemia and OGTT

Principle:
(Reactions employed in glycemia measurement. Use structural formulas.)

Results:

	Test-tube 1	Test-tube 2	Test-tube 3	Test-tube 4	Test-tube 5
	Serum 1	Serum 2	Serum 3	Standard	Blank
A 500 nm					

Calculations:

$$\text{Serum glucose (mmol/l)} = \frac{A_{sample}}{A_{standard}} \times C_{standard}$$
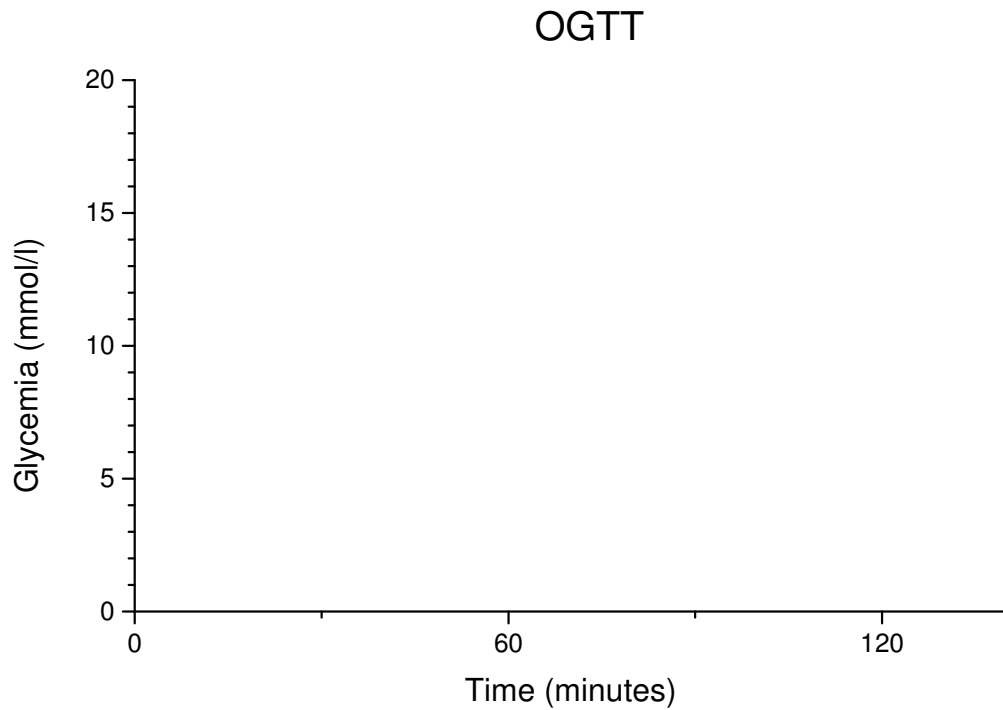
$C_{standard} = 10$ mmol/l

Serum 1 (time 0 min.):   S- Glc (mmol/l) =

Serum 2 (time 60 min.):   S- Glc (mmol/l) =

Serum 3 (time 120 min.): S- Glc (mmol/l) =

Evaluation and conclusion:

1. From the three data points obtained, draw a glycemic profile:

OGTT

2. Compare the fasting value and the 2-hour value with the physiological limits, and conclude whether your patient is healthy, displays an impaired glucose tolerance, or even diabetes mellitus.

Task 2: Estimation of glycated serum proteins (fructosamine)

Principle:

Results:

	Serum freshly mixed with glucose	**Serum glycated for several days**	**Standard**
A1:			
A2:			

Calculation:

$$\text{Glycated serum proteins (µmol/l)} = \frac{A2_{serum} - A1_{serum}}{A2_{standard} - A1_{standard}} \times c_{standard}$$

$C_{standard} = 250 \, µmol/l$

Serum freshly mixed with glucose:

Glycated serum proteins (µmol/l)   =

Serum glycated for several days:

Glycated serum proteins (µmol/l)   =

Conclusion:

Task 3: Detection of glucose in urine

Fehling test

Principle:
(Reaction employed)

3

Diagnostic strip test

Principle:
(Reactions employed)

Results:

Sample of urine	Fehling test	Diagnostic strip test
Urine with glucose		
Urine with glucose and ascorbic acid		
Urine with fructose		
Physiological urine		
Unknown sample of urine		

Discussion and conclusion:
Carefully consider all results, positive or negative, and try to explain them on the basis of theoretical information on the specificity of each test, as well as the possible causes of false positive or false negative results. Decide whether the unknown sample of urine contains glucose.

Task 4: Detection of ketone bodies in urine

Principle:
(Reaction employed)

Results:

Sample	Legal test	Lestradet test	Diagnostic strip test
Urine with ketone bodies			
Physiological urine			
Unknown sample of urine			

Discussion and conclusion:
Consider whether all the results follow the expectations. Decide whether the unknown sample of urine contains ketone bodies.

Task 5: Estimation of glycemia with personal glucometer

Principle:

Results and conclusion: