

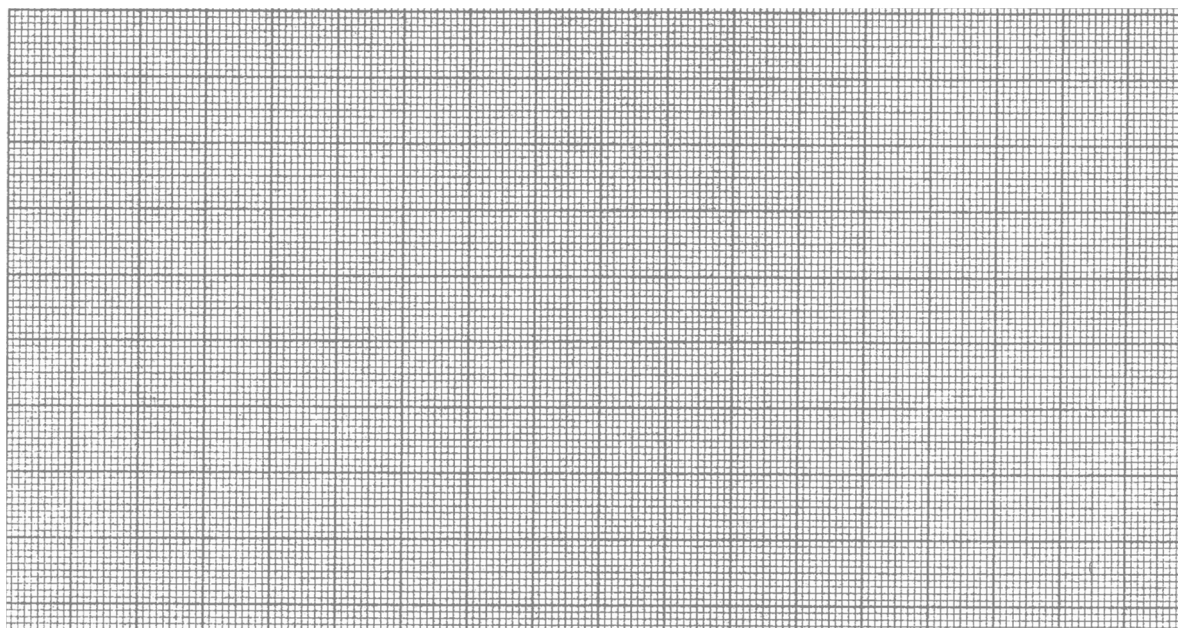
Date Name Group

Lab report from the practical lesson on biochemistry**Topic: Lipids, lipoproteins****Task 1: Hydrolytic cleavage of fat with pancreatic lipase****Principle:****Results:**

Test tube:	Time	Consumption of NaOH 0.02 mol/l (ml)
Blank	0	
1	20 min	
2	40 min	
3	60 min	
3D	60 min	

Evaluation:

Create a simple graph to show the course of hydrolysis of milk fat. Plot the time (min.) on the x axis and the consumption of NaOH 0.02 mol/l (ml) on the y axis:



Conclusion:

Explain the increasing consumption of NaOH 0.02 mol/l during the incubation and consider whether your experiment demonstrates a promoting effect of deoxycholate on fat digestion.

Task 2: Demonstration of unsaturated bonds in fatty acids**Principle:****Results:**

	TEST TUBE 1 Palmitic acid	TEST TUBE 2 Oleic acid	TEST TUBE 3 Plant oil	TEST TUBE 4 Blank
Color with KMnO ₄				

Conclusion:

Summarize the observed color changes and explain them.

Task 3: Estimation of malondialdehyde**Principle:****Results:**

	TEST TUBE 1 Fresh oil	TEST TUBE 2 Expired oil	TEST TUBE 3 Blank
Color following heating with thiobarbituric acid			

Conclusion:*Compare the color intensity in all the test tubes and try to explain the results.***Task 4: Estimation of serum concentration of total and HDL cholesterol****Principle (reactions employed in the assay):**

Results:

	TEST TUBE 1 Total cholesterol	TEST TUBE 2 HDL cholesterol	TEST TUBE 3 Standard	TEST TUBE 4 Blank
A ₅₀₀				0

Calculation:**1. Concentration of total serum cholesterol:**

$$\text{S-Total cholesterol (mmol/l)} = \frac{A_{\text{sample}}}{A_{\text{standard}}} \times C_{\text{standard}}$$

$$\text{S-Total cholesterol (mmol/l)} = \frac{\dots\dots\dots}{\dots\dots\dots} \times \dots\dots\dots =$$

2. Concentration of HDL cholesterol:

$$\text{S-HDL cholesterol (mmol/l)} = \frac{A_{\text{supernatant}} \times 3}{A_{\text{standard}} \times 10} \times C_{\text{standard}}$$

$$\text{S-HDL cholesterol (mmol/l)} = \frac{\dots\dots\dots}{\dots\dots\dots} \times \dots\dots\dots =$$

Conclusion:

Compare your result with reference range.

Task 5 Estimation of serum concentration of triacylglycerols**Principle (reactions employed in the assay):****Results:**

	TEST TUBE 1 Serum sample	TEST TUBE 2 Standard	TEST TUBE 3 Blank
A ₅₄₀			0

Calculation:**Concentration of triacylglycerols in serum:**

$$\text{S-Triacylglycerols (mmol/l)} = \frac{A_{\text{sample}}}{A_{\text{standard}}} \times C_{\text{standard}}$$

$$\text{S-Triacylglycerols (mmol/l)} = \frac{\dots\dots\dots}{\dots\dots\dots} \times \dots\dots\dots =$$

Conclusion:*Compare your result with reference range.*

Task 6: Calculation of LDL cholesterol and non-HDL cholesterol

	Triacylglycerol (mmol/l)	
LDL cholesterol (mmol/l)	= Total cholesterol (mmol/l)	– HDL cholesterol (mmol/l) – $\frac{\text{Triacylglycerol (mmol/l)}}{2.2}$

$$\text{LDL cholesterol (mmol/l)} = \dots - \dots - \frac{\dots}{2.2} = \dots$$

Non-HDL cholesterol (mmol/l) = Total cholesterol (mmol/l) – HDL cholesterol (mmol/l)

$$\text{Non-HDL cholesterol (mmol/l)} = \dots - \dots = \dots$$

Conclusion:

Summarize whether these calculated parameters indicate an increased risk of atherosclerosis and cardiovascular disease.