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

Lab report from the practical lesson on biochemistry

Topic: **Tetrapyrrols, liver, blood clotting. Cardiomarkers**

Task 1: Estimation of total bilirubin in serum

Principle:
(use structural formulas!)

Results:

	Test tube No 1 Blank 1	**Test tube No 2 Blank 2**	**Test tube No 3 Serum sample**
Absorbance 540 nm	0		

Absorbance of the sample after subtraction of Blank 2: ……

Calculation:

a) **Reading from calibration graph** *(attach the graph to your report)*

Concentration of total bilirubin read from the calibration curve is.....

b) Using calibration factor

	Standard no.				
	1	2	3	4	5
Bilirubin concentration (µmol/l)					
Absorbance (A540)					
Calibration factor f1-f5 (concentration/absorbance)					

$$\text{Average calibration factor} = \frac{f1 + f2 + f3 + f4 + f5}{5} = \ldots\ldots\ldots\ldots\ldots\ldots$$

S-Total bilirubin (µmol/l) $= A_{sample} \times$ average factor = ……..

Conclusion:
(Is the measured values of total bilirubin within reference limits?)

Task 2: Estimation of direct bilirubin in serum

Principle:

Results:

	Test tube No 1 Blank 1	**Test tube No 2 Blank 2**	**Test tube No 3 Serum sample**
Absorbance 540 nm	0		

Absorbance of the sample after subtraction of Blank 2: ……

Calculation:

a) **Reading from calibration graph**

Use the graph in the previous task

Concentration of direct bilirubin read from the calibration curve is.....

b) **Using calibration factor**

Use the factor calculated in the previous task

S-Direct bilirubin (µmol/l) $= A_{sample} \times$ average factor = ……..

Conclusion:
Is the measured value of direct bilirubin within the reference limits? If taken together with the value of total bilirubin, what type of icterus (pre-hepatic, post-hepatic or hepatocellular) is found?

Task 3: Fluorescence and spectrophotometry of hematoporphyrin

Principle:

Results/Observations:

Fluorescence of hematoporphyrin

Diluted blood:

Sample of urine:

Sulfuric acid:

Spectrophotometry of hematoporphyrin

Sample	**Absorption maximum (nm)**	**Evaluation** (porphyrins present/absent)
Diluted blood		
Unknown sample 1		
Unknown sample 2		

Conclusion:

Task 4: Estimation of γ-glutamyl transferase (GGT) in serum

Principle:

(Use structural formulas)

Results and calculations:

Time:		ΔA_{405}
0	A_0 ……	
1 minute	A_1 ……	$A_1 - A_0 \rightarrow \Delta A_1$ ……
2 minutes	A_2 ……	$A_2 - A_1 \rightarrow \Delta A_2$ ……
3 minutes	A_3 ……	$A_3 - A_2 \rightarrow \Delta A_3$ ……

$$\Delta A_{405}/\text{min.} = \frac{\Delta A_1 + \Delta A_2 + \Delta A_3}{3} = \text{……..}$$

$$\text{GGT (μkat/l)} = \Delta A_{405}/\text{min.} \times 18.52 = \text{…….}$$

Conclusion:

Compare the catalytic concentration of GGT in your sample with reference values.

Task 5: Examination of basic blood clotting parameters with coagulometer

Principle:

Results and conclusion:

Task 6: POCT examination of troponin

Principle:

Results and conclusion: