



10-IU6AWTRXC2S9KVW



9864208

FÖRSÄTTSBLAD TENTAMEN/ EXAMINATION COVER

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IFYLLES AV STUDENT OCH TENTAMENSVAKT/
TO BE FILLED IN BY THE STUDENT AND THE INVIGILATOR:

KURSKOD / COURSE CODE <table border="1"><tr><td>H</td><td>L</td><td>1</td><td>0</td><td>0</td><td>7</td></tr></table>	H	L	1	0	0	7	EFTERNAMN / FAMILY NAME MIKULIC												
H	L	1	0	0	7														
KURSNAMN / COURSE NAME Medicinsk teknik, grundkurs	FÖRNAMN / FIRST NAME Luka																		
PROVKOD / TEST CODE <table border="1"><tr><td>T</td><td>E</td><td>N</td><td>1</td></tr></table>	T	E	N	1	NAMNTECKNING / YOUR SIGNATURE 														
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TENTAMENDATUM / EXAMINATION DATE Y/Y/Y/Y M/M D/D 2025 - 10 - 22	PERSONNUMMER / PERSONAL NUMBER Y/Y/Y/Y/M/M/D/D 20031219 - T356																		
PROGRAMKOD / PROGRAM CODE: 	INLÄMNINGSTID / TIME SUBMITTED: 15.42	SIGNATUR TENTAMENSVAKT / SIGNATURE INVIGILATOR: ESW	ANTAL BLAD / NO OF SHEETS: 18																
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BEDÖMNING / ASSESSMENT																				
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BONUSPOÄNG/ BONUS POINTS:	<table border="1"><tr><td> </td><td> </td></tr></table> ,					<table border="1"><tr><td> </td></tr></table>		SLUTSUMMA / FINAL POINTS:	<table border="1"><tr><td> </td><td> </td></tr></table> ,					<table border="1"><tr><td> </td></tr></table>		BETYG/ GRADE:	<table border="1"><tr><td> </td></tr></table>			

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Godkänts av examiner /
approved by Examiner.....

Mikulic Luka

20031219 T356

1 1

Family name, first name

Personal Registration Number

Programme

Sheet no.

Problem no.

TERMINOLOGY

1. a) relating to the nose
- b) fibrous sac surrounding the heart
- c) poor oxygenation
- d) relating to brain
- e) fingers
- f) physical (regarding the body)
- g) a matter (clot or similar) that flows through the vessels. Usually part of thrombus that falls off. Can be air pocket (air embolus) and other.
- h) degradation of bone tissue, usually in elderly patients, bones become porous
- i) small air sacs where gas diffusion occurs ~~(fill hole)~~
in the lungs
- j) period in menstrual cycle (when) around egg release
- k) treatment which treat cause of disease (^{e.g.} antibiotics for infection) with bacteria
- l) 



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2. a) bradycardium b)
b) parenchyma
c) cardiologist
d) hyperlipidosis
e) seborrheic
f) expiration
g) trauma
h) dorsi
i) (Hypoxia) acidosis
j) necrosis
k) (Septicemia) encephalitis
l) ganglion
m) bacilli



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Sheet no.

Problem no.

3.

1) smooth - involuntary, covers internal organs

2) striated - voluntary, skeletal muscles

3) myocardium - heart muscle, appearance is striated but it is also involuntary

involuntary = can't contract by will

voluntary = can contract by will



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Problem no.

4. we inject ^{weakened} (~~weak~~) antigens for our white blood cells to memorize and produce (and learn how to produce) specific antibodies.

because the antigens adapt / evolve or to make sure we don't inject too strong antigens at once.



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J J

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5. albumin - acts as buffer and regulates BP
bilirubin - waste product of kidneys
creatinine - waste product created from creatine



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Problem no.

6. injection - simple and fast way to deliver a big amount of medicine

transfusion - slow controlled release

topical cream - when we need localized medicine that absorbs through the skin.

pills - easiest way, simple to administer medicine by yourself

7. 10

neurons communicate via nerve pulses which go from dendrite of 1 nerve body through the axon to the synapse where pulse/signal is transmitted to 2nd neuron via neurotransmitters.

Action potential is when pulse is being generated through nerve cells. (Axon)

First, neuron is -70mV (resting potential) and has more K^+ ions in the cell. When pulse occurs, K^+ ions exit and Na^+ ions enter the cell, thus reversing its polarity (now positive). It follows the all-or-nothing principle (needs to get to -50mV for signal to occur).

After pulse, Na^+ exits and K^+ enters the cell.

Ion exchange occurs in ion channels (one being $\text{Na}-\text{K}$ pump).

Mikulec Lukáš

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8. It is when muscles contract around the patella rapidly due to ~~the~~ shortening of them which activates the stretch reflex - muscles contract when they are rapidly stretched.
- 1) 1. hypoesthesia - low sensitivity which can be result of nerve death/injury
2. hyperesthesia - too much sensitivity in nerve cells, receptor can be more sensitive (for example because of adrenaline injection)



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Problem no.

9. When the heart fails to pump enough blood
1. because of congestion, & blockage. It starts to die.

Dr. (Using ~~Using~~ ~~and~~ ~~using~~)

2. Using a endoscope instrument to destroy blockage
and to free up vessels from built-up .

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10.

Programme

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10. Acidosis is a state where the patient's blood has too much CO_2 which combines with water creates carbonic acid H_2CO_3 and lowers blood pH.

Metabolic acidosis happens on the metabolic respiration, inside skeletal themselves. Not enough CO_2 is being taken away.

Respiratory acidosis happens in respiratory of the lungs (external respiration), we don't exhale enough CO_2 and therefore we have too much CO_2 in (lungs)
(With rebreather)



Mirković Luka

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Family name, first name

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Problem no.

11. We detect how much energy is being absorbed by the sample and determine the concentration since it is proportional to the difference of energy between transmitted energy and energy after passing through the sample.

1. If sample is already saturated, it can't take any more of (~~more~~) energy.

2. If sample is very reactive and emits the energy quickly (then we need more energy to replace emitted) we will see less than (~~not~~) true value.



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Problem no.

12. It works by placing the patient in a container that has high air pressure inside. Higher pressure enables oxygen to diffuse into blood easier.

1 (acidosis) / C_O poisoning

2 heart problems (heart can't pump enough oxygenated blood)

Mirković Luka

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13 13

Family name, first name

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Problem no.

13. Tidal Volume is the volume combining inspiration and expiration volume during one full inhale and exhale.
It can be measured using dynamic spirometry, a technique where the patient breathes as fast and deep as possible. This goes on for 10-15 seconds and is calculated into volume / minute.

(~~Not measured today~~)

The patient breathes into tubes / devices to detect air flow.

Tidal Volume can also be (~~not~~) measured with static spirometry.



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Problem no.

14.

Fick principle is that the flow is equal

- 1) to concentration of matter (before - after) divided by absorption. $\frac{P_b - P_c}{X}$

2) (using otomax)

Using pulse oximeter



Mikulic Luká

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15. first we get a agar-agar - gelatinous dish
with needed matters for the organism to reproduce,
= Nährdhydrat (salt, nutrition, water).

1) Then we put the specimen sample, which we acquired from the patient swab, on the agar-agar in a streak pattern. We wait for the culture to grow to observe and identify it.

2) Rapid antigen test. (for COVID-19),

observing symptoms, other immunochemical tests, ...



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16 16

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16. It's a technique for internal dialysis.

We fill the patient's peritoneal cavity with water and salts,... Then we use the cavity to filter out the patient's blood. This is done when the patient's kidneys can't properly filtrate the blood themselves.

Alternative to extracorporeal (external) dialysis, can be cheaper and faster.

MIKULIC LUKA

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17 17

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17. MRI is great for soft tissue and spatial resolution for it, better than CT.

~~(It looks in ~~the~~ imaging of hard tissue like bone, CT is better than that.)~~

MRI looks in hard tissue imaging (like bone) and is also expensive, where CT is great for hard tissues and is usually cheaper than MRI.

MRI is better if the patient is sensitive to radiation since it uses powerfull magnets and not radiation.



Mikulić Luka

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18 18

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Problem no.

18. P wave - filling of atria

QRS - emptying of atria into ventricles (SA node activates),

T - emptying of ventricles (they contract forcefully)

b) we should perform a defibrillation for the AV node to be able to fire up again.

Defibrillation sends a powerful shock to the heart which can "restart" the cardiac cycle.