

1 Question 1

Please indicate if the following reactions in the body are due to activation of the sympathetic or parasympathetic nervous system (4 points)

Find the match:

| | Parasympathetic | Sympathetic |
|------------------------------------|-------------------------|-------------------------|
| Increased digestion | <input type="radio"/> ✓ | <input type="radio"/> |
| Increased pulse and blood pressure | <input type="radio"/> | <input type="radio"/> ✓ |
| Increased blood flow to muscles | <input type="radio"/> | <input type="radio"/> ✓ |
| Increased respiratory frequency | <input type="radio"/> | <input type="radio"/> ✓ |

Maks poeng: 4

2 Question 2

(Maximum score 4 points)

Highlight which cell type is associated with which cancer type

Find the matching cells and cancers:

| | Sarcoma | Blastoma | Carcinoma | Lymphoma |
|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Lymphatic cells | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> ✓ |
| Undifferentiated cells | <input type="radio"/> | <input type="radio"/> ✓ | <input type="radio"/> | <input type="radio"/> |
| Connective tissue cells | <input type="radio"/> ✓ | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Epithelial cells | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> ✓ | <input type="radio"/> |

Maks poeng: 4

3 Question 3

(Maximum score 4)

Which of the following are classic causes of deep vein thrombosis?

Choose one or more alternatives

- Pregnancy ✓
- Heritability ✓
- Allergy
- Exercise
- Overhydration
- Exposure to furry animals
- Immobility ✓
- Surgery ✓

Maks poeng: 4

4 Question 4

(6 points)

What is the pulmonary circulation? (maximum 3 sentences)

Write your answer here:

What is the systemic circulation? (maximum 3 sentences)

Write your answer here:

What are the coronary arteries? (maximum 3 sentences)

Write your answer here:

Maks poeng: 6

5 Question 5

(6 points)

Please describe in 2-3 sentences the main aspects of diabetes type 1.

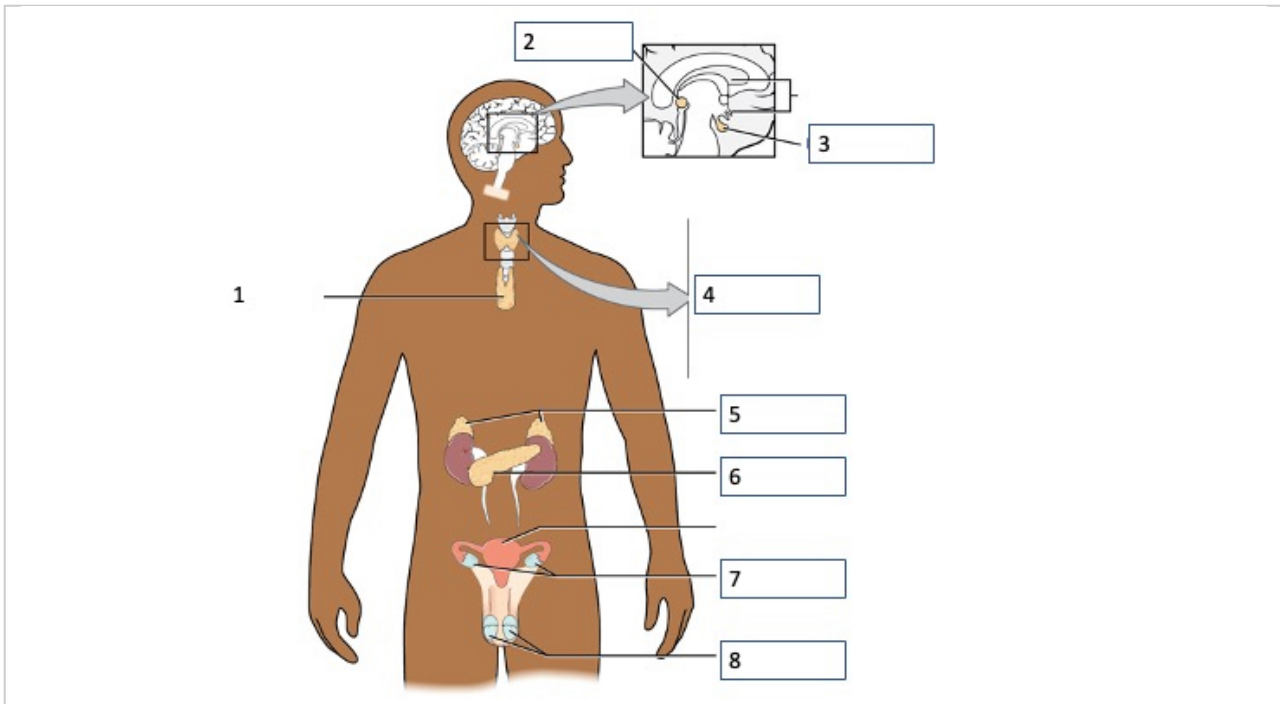
Write your answer here:

Please describe in 2-3 sentences the main aspects of diabetes type 2.

Write your answer here:

Maks poeng: 6

6 Question 6



Please provide the names of these structures related to the endocrine system (the illustration contains both male and female gonads). (Maximum points 8)

Structure 1

Write your answer here:

Structure 2

Write your answer here:

Structure 3

Write your answer here:

Structure 4

Write your answer here:

Structure 5

Write your answer here:

Structure 6

Write your answer here:

Structure 7

Write your answer here:

Structure 8

Write your answer here:

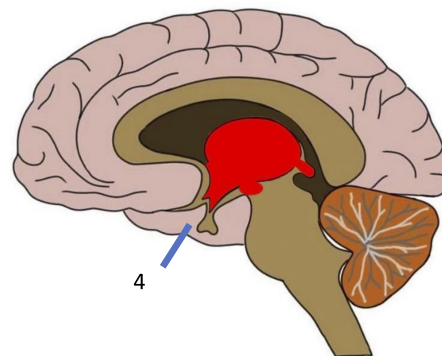
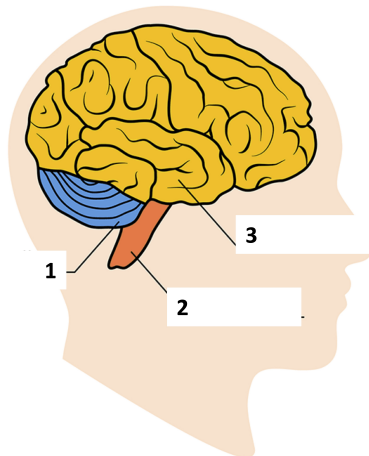
Maks poeng: 8

7 Question 7

Please provide the correct names for the different parts of the brain (4 points)

Find the match:

| | 1 | 4 | 3 | 2 |
|--------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| Cerebrum | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| Diencephalon | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Cerebellum | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Brainstem | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |



Maks poeng: 4

8 Question 8

What is the purpose of homeostasis? Maximum 4 sentences. (4 points)

Write your answer here:

Maks poeng: 4

9 Question 9

What are the vital signs? (5 points)

Write correct answer here:

Maks poeng: 5

10 Question 10

The endocrine system secretes messenger molecules that are called? (1 point)

Choose one alternative

- Neurones
- Hormones
- Gametes
- Peptides



What is correct concerning the homeostatic response? (1 point)

Choose one alternative:

- Nerve impulses are redundant
- Nerve impulses typically result in a slower response
- Hormones typically cause rapid change
- Nerve impulses typically cause rapid change



Maks poeng: 2

11 Question 11

(6 points)

Kidney failure is a serious condition. Describe in 2-3 sentences the two main types of treatment for kidney failure.

Write your answer here:

In 2-3 sentences, name at least four of the main functions of the kidneys.

Write your answer here:

Maks poeng: 6

12 Question 12

(2 points)

Which of the following is an example of loose connective tissue?

Choose one alternative:

- Blood
- Ligaments
- Bone
- Cartilage



Which of the following best describes the function of mitochondria?

Choose one alternative:

- The detoxification of harmful substances
- Transport of proteins
- The generation of energy
- The packaging of substances made in the cell



Maks poeng: 2

13 Question 13

There are two ways in which substances can move across the cell membrane; active or passive (3,5 points).

Which of these processes across the cell membrane are active or passive?

| | Active | Passive |
|-----------------------|-------------------------|-------------------------|
| Filtration | <input type="radio"/> | <input type="radio"/> ✓ |
| Diffusion | <input type="radio"/> | <input type="radio"/> ✓ |
| Transport pumps | <input type="radio"/> ✓ | <input type="radio"/> |
| Facilitated diffusion | <input type="radio"/> | <input type="radio"/> ✓ |
| Exocytosis | <input type="radio"/> ✓ | <input type="radio"/> |
| Endocytosis | <input type="radio"/> ✓ | <input type="radio"/> |
| Osmosis | <input type="radio"/> | <input type="radio"/> ✓ |

Maks poeng: 3.5

14 Question 14

Please indicate how fluid passes through the kidneys and urinary system, with 1 indicating the first structure the fluid passes, and 5 the last. (2.5 points)

Describe the right order:

| | 5 | 1 | 3 | 4 | 2 |
|-------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Nephrons | <input type="radio"/> | <input type="radio"/> ✓ | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The calyces | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> ✓ |
| The urethra | <input type="radio"/> ✓ | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The bladder | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> ✓ | <input type="radio"/> |
| The ureters | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> ✓ | <input type="radio"/> | <input type="radio"/> |

Maks poeng: 2.5

15 Question 15

(7 points)

What is the name of the bacteria that can cause gastric/duodenal ulcer? (Max 2 sentences). (1 point)

Write your answer here:

What are dangerous complications of an ulcer? (maximum 3 points)

Write your answer here:

What is the most important cause of hepatitis in developed countries? (maximum 2 sentences). (1 point)

Write your answer here:

What are typical symptoms of gastroenteritis? (maximum 3 sentences). (1 point)

Write your answer here:

List 2 types of inflammatory bowel disease. (maximum 2-3 sentences). (1 point)

Write your answer here:

Maks poeng: 7

16 Question 16

(10 points)

Explain how cell division is crucial to understand cancer development (maximum 3 sentences).

Write your answer here:

List at least two processes that continuously takes place in the body and that prevent cancer development (maximum 3 sentences).

Write your answer here:

What is the primary tumor? (maximum 3 sentences)

Write your answer here:

What cells are typically damaged by chemotherapy? (maximum 3 sentences)

Write your answer here:

What is the rationale for developing anticancer medication that targets angiogenesis? (maximum 3 sentences).

Write your answer here:

Maks poeng: 10

17 Question 17

Which organ receives the blood draining the intestine? (1 point)

Choose one alternative:

- Kidney
- Pancreas
- Liver
- Spleen



Maks poeng: 1

18 Question 18

Which of the following are classic symptoms of inflammation? (One or more options.) (4 points)

Choose one or more alternatives

- Headache
- Swelling
- Vomiting
- Nail changes
- Pain
- Redness
- Bony changes
- Blue discoloration
- Heat



Maks poeng: 4

19 Question 19

Prostate-specific antigen (PSA) is a protein that are produced by normal prostate gland cells AND prostate cancer cells. It is secreted from the prostate gland in small amounts, and can be traced in the blood. The PSA test is a blood sample that measure the amount of PSA in the blood. This test can be used to determine prostate cancer. The final diagnose of prostate cancer is proved with a tissue sample (biopsy) from the prostate gland («gould standard»).

With a limit for positive test at 4 $\mu\text{g/L}$, the PSA test has a sensitivity for cancer on 70 %, and a spesificity on 50%.

Of 1010 men 1000 does not have prostate cancer (healthy), while 10 has prostate cancer (sick).

Use the information on prevalence of prostate cancer in this group, and the PSA test characteristics and filll in the values for cells A to G. (7 points)

| | Sick | Healthy | Sum |
|------------------|------|---------|-----|
| PSA test positiv | A | B | |
| PSA test negativ | C | D | |
| Sum | E | F | G |

Celle A (1, 2, 3, 4, 5, **7**, 10, 50, 70, 100, 120, 400, 500, 700, 800, 1000, 1010)

Celle B (1, 2, 3, 4, 5, 7, 10, 50, 70, 100, 120, 400, **500**, 700, 800, 1000, 1010)

Celle C (1, 2, **3**, 4, 5, 7, 10, 50, 70, 100, 120, 400, 500, 700, 800, 1000, 1010)

Celle D (1, 2, 3, 4, 5, 7, 10, 50, 70, 100, 120, 400, **500**, 700, 800, 1000, 1010)

Celle E (1, 2, 3, 4, 5, 7, **10**, 50, 70, 100, 120, 400, 500, 700, 800, 1000, 1010)

Celle F (1, 2, 3, 4, 5, 7, 10, 50, 70, 100, 120, 400, 500, 700, 800, **1000**, 1010)

Celle G (1, 2, 3, 4, 5, 7, 10, 50, 70, 100, 120, 400, 500, 700, 800, 1000, **1010**)

Maks poeng: 7

20 Question 20

Please respond with 1-3 sentences for each question. (6 points)

What is a stroke?

Write your answer here:

Can you describe some common symptoms or signs of stroke?

Write your answer here:

Why is rapid treatment of stroke important?

Write your answer here:

Maks poeng: 6

21 Question 21

Place the different parts of the respiratory system in the correct order the oxygen enters the body to the vessels of the lung. 1 is the first anatomical structure the oxygen passes, 6 is the last anatomical structure the oxygen passes in the respiratory system. (3 points)

Place the correct order:

| | 1 | 4 | 6 | 2 | 5 | 3 |
|-------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| Alveoli | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Bronchi | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Oral cavity | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Bronchioles | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| Trachea | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| Larynx | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Maks poeng: 3

22 Question 22

(Maximum score 10)

Find the matching organ and disease. Please note that the table exceeds the window, and the window has to be enlarged to the right and downwards.

| | Stomach | Dopamin producing cells | Adrenal glands | Pancreas | Lungs | Colon | Gall bladder |
|---------------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| Cholecystitis | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| Stroke | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Ulcerative colitis | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| Addisons disease | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Parkinsons disease | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Myocardial infarction | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Chronic obstructive pulmonary disease | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Peptic ulcer | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Diabetes type 1 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Multiple sclerosis | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Maks poeng: 10

23 Question 23

(Maximum score 4)

Heart failure is always caused by atherosclerosis

Velg ett alternativ:

True

False



High blood pressure causes at least as many deaths worldwide as tobacco use

Velg ett alternativ:

True

False



Artherosclerosis includes both lipid accumulation and inflammation

Velg ett alternativ:

True

False



Arterial insufficiency can cause gangrene

Velg ett alternativ:

True

False



Maks poeng: 4

24 Question 24

(Maximum score: 8)

Please note that the table exceeds the window, and it may be necessary to enlarge the window to the right and downwards.

Find the matching function and organ:

| | Cerebrum | Adrenal glands | Liver | Lungs | Testis | Kidney | Cerebellum | Pancre |
|--------------------------|--|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| Electrolyte balance | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Balance and coordination | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> |
| Insulin production | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> |
| Gall (bile) production | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Cortisol production | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Motor control | <input type="radio"/> <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Sperm production | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Oxygenation of blood | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input checked="" type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Maks poeng: 8