Tentamen

Medicin C, Neurobiologi, 5 Högskolepoäng

Kurskod: MC1729

Kursansvarig: Ravi Vumma (*tfn*: 0761666044)

Datum: 2014-01-24 **Skrivtid:** 4 tim

Total poäng: 80 P

Poängfördelning: Ravi Vumma - **25P**

Godfried Roomans- **55P**

Godkänd: **60 %** av totala poängen

Väl godkänd: **85 %** av totala poängen

OBS!

Du får svara på svenska eller engelska

Skriv kodnr på varje ark du lämnar in

Skriv endast på ena sidan av arket

Ange svaren till respektive lärares avsnitt på separata pappersark

Lycka till!

Lärare: Ravi Vumma - 25P

1. What are a) motor nerves b) sensory nerves -2P
2. Explain how electrical signals with in a nerve cell are formed and explain how signals between nerve cells to other cells are transmitted? -2P
3. Explain the process of neuropeptide synthesis and release? 4P
4. What are the differences between Nitric Oxide as a neurotransmitter and other neurotransmitters? -3P
5. True or false -3P
   a) Carbon monoxide like nitric oxide activates the soluble guanylate cyclase
   b) Carbon monoxide does not have any neurohormone characteristics
   c) Endogenous Opioids regulate the sexual behavior
6. What happens to the levels of ATP and calcium in cases of brain ischemia and what consequences arise due their level alterations?-3P
7. Explain how oxidative stress can cause the pathogenesis of Parkinson's disease? -2P
8. Explain how nociceptive neurons play an important role in the pathogenesis of pain ?-3P
9. Name some of the non-narcotic analgesics used to treat the pain and what are the side effects associated with them?-3P

Lärare: Godfried Roomans -55P

10. (a) The neurotransmitter that is released into the synaptic cleft can be acetylcholine, or a monoamine (e.g., noradrenaline). Describe for each type of neurotransmitter, how it is removed from the synaptic cleft! (*2 points*)
    (b) Binding of acetylcholine to the sarcolemma can be prevented in several ways. Name two of these ways, used in experimental research, or that are the cause of disease! (*2 points*)
11. Make a drawing of an action potential, where you plot the membrane potential against time. Indicate the names of the different phases of the membrane potential and indicate what ion transport dominates in each phase! (*5 points*)
12. What is meant by the refractory period, and approximately how long does it last? (*2 points*)
13. Describe the properties and the localization of ependyma cells! (*3 points*)

14. What is meant by “somatotopical organization´” and what determines the size of the area in the cerebral cortex responsible for a particular body part? (*3 points*)
15. Where is the limbic system located? Explain why the limbic system is important for “romance” and procreation! (*4 points*)
16. a. Describe where and how the cerebrospinal fluid is produced! (*2 points*)

    b. How and to what fluid is the cerebrospinal fluid resorbed? (*2 points*)

17. Describe (make a schematic drawing of) the blood supply of the brain, naming the arteries involved (*4 points*)
18. a. Name (four) functions of the cerebellum! (*4 points*)
    b. Damage to the lateral part of the cerebellar hemispheres may result in ataxia. Name (at least) two symptoms that are due to ataxia! (*2 points*)
19. (a) In what part of the brain is melatonin produced, (b) what is the precursor of melatonin, and (c) what function(s) does melatonin have? (*3 points)*
20. What neurons are present in the (a) posterior horn, (b) lateral horn, (c) anterior horn of the spinal cord? (*3 points*)
21. Describe the course and the function of the spinocerebellar tract (*3 points*)
22. A male that has a heart attack usually feels pain on the inside of the left arm and the left side of the thorax. (a) Explain this! (b) What is this type of pain called? (*3 points*)
23. The developing spinal cord can be divided into an alar plate and a basal plate. (a) What are the differences between the alar place and the basal plate? (b) To what factors are these differences due? (*4 points*)
24. What cellular mechanisms are involved in short-term and long-term learning, respectively? (*4 points*)

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