

Lecture: Sleep – Phenomena, Physiology and Function

NAME: [REDACTED]

MATRICULATION NUMBER: [REDACTED]

The exam will take 60 minutes. There are 17 questions. For each question, a given number of points can be reached, which is indicated in the right margin. Each fact, concept or idea is worth 1 point. You can reach altogether 60 points, i.e. you have one minute per point.

Answers can and should be short! You can use bullet points or tables where appropriate. There are **no extra points for longer answers** or answers that are not to the point!

Remember to write legibly. I can score only what I can read.

Please number all pages and staple them in the end with the provided stapler.

Good luck!

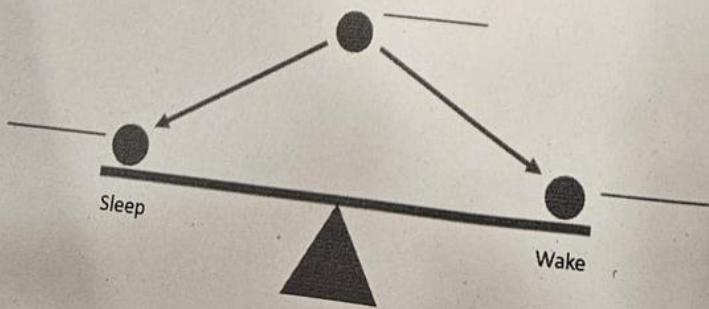
1. What is in the widely accepted definition of sleep? (3)

2. Why can we record electrical brain activity? (4)

3. What are the periodic and aperiodic components of the EEG?
How are they represented in the power spectrum? (4)

4. What are recording electrode, ground electrode, and reference electrode used for? (3)

5. In the following model: Please provide brain regions and neurotransmitters. (6)



6. Which are the central factors contributing to the genetic mechanism of the circadian rhythm? (4)

7. How many circadian clocks exist in the human organism?

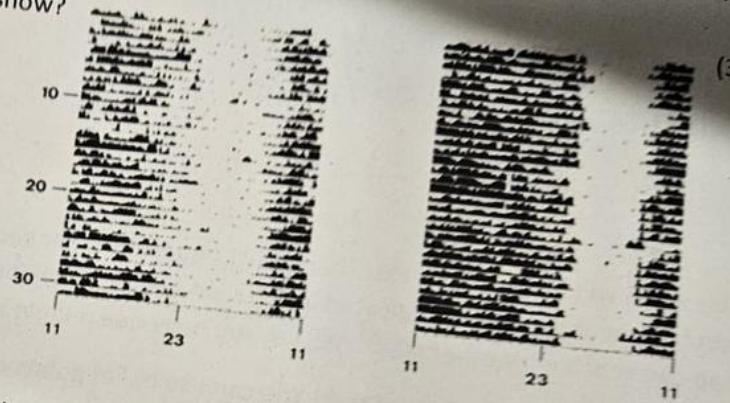
(1)

8. Name some health and social problems related to shift work.

(4)

9. What does the following figure show?

(4)



10. Name some ways by which chronic sleep reduction/deprivation can lead to impaired health.

(4)

11. Name factors that modulate performance impairments from sleep loss in cognitive tasks.

(3)

12. What is meant by synaptic homeostasis?

(3)

13. Which electrophysiological phenomena jointly contribute to memory consolidation?
From which brain region do these phenomena originate?
(Name at least two out of three.)

(2)

(2)

14. Provide a possible explanation why we more often remember negative dreams than positive ones.

(3)

15. Name four components of CBT-I.

(3)

16. If you suffered from insomnia. Which category of hypnotic would you prefer? Why?

(4)

17. Is sleep rather an active or a passive state? Give arguments for both sides!

(2)

(5)