

i INFORMATION

Only three (3) of the four following questions must be answered. Keep the answers brief!
Answers can be written in English, Norwegian, Swedish, or Danish.

1 Question 1. Methods of cognitive neuroscience.

(a) Describe the two main (general) approaches for linking cognitive functioning to neuronal processes. Name one example method for each of the two;

(b) Describe the concept of “double dissociation” in lesion studies (give an example). What can we learn from lesion studies?

(c) Which method to measure neuronal response would you use if you would want to know “when” a cognitive process is happening? Provide a brief explanation.

Fill in your answer here

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2 Question 2: Motor systems

(a) What is the role of the basal ganglia for motor control?

(b) What is the organization of the basal ganglia loop? How do the nodes of the basal ganglia loop interact?

(c) Briefly describe the main (motor) symptoms of Parkinson’s and Huntington’s disease and how they relate to basal ganglia dysfunction?

Fill in your answer here

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3 Question 3: Attention

(a) What is visuospatial neglect? What brain region is likely affected in neglect patients?

(b) Briefly describe how attention is controlled in the brain according to the model proposed by M. Corbetta & G. Shulman.

(c) Given the anatomical overlap between lesions causing visuospatial neglect and the Corbetta & Shulman model, which attention network is primarily affected in neglect?

Fill in your answer here

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4 Question 4: Decision making.

- (a) Describe the role of dopamine in reward processing;
- (b) What are social rewards and how are they similar/dissimilar to nonsocial rewards;
- (c) What is game theory and how can it be used in neuroscientific research about decision making. Briefly describe one behavioral task which is used in decision making research that originates from the game theory framework.

Fill in your answer here

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