

Institutionen för Biovetenskap

TENTAMEN

Kurs: **Introduktion till kognitiv neurovetenskap och positiv psykologi G1N**

Examinationsmoment

Kurskod: **KU132G**

Högskolepoäng för examinationsmomentet: 5

Datum: **2023-11-10**

Tentamenstid: **08.15-12.30**

Ansvarig lärare: Antti Revonsuo

Berörda lärare: Stefan Berglund

Hjälpmedel/bilagor: Ordbok från modersmål till engelska är tillåten

Övrigt

- Anvisningar
- ☐ Ta nytt blad för varje lärare
 - ☐ Ta nytt blad för varje ny fråga
 - ☒ Skriv endast på en sida av papperet.
 - ☒ Skriv namn och personnummer på samtliga inlämnade blad.
 - ☒ Numrera lösbladen löpande.
 - ☒ Använd inte röd penna.
 - ☒ Markera med kryss på omslaget vilka uppgifter som är lösta.

Poänggränser Godkänd: för godkänt resultat krävs godkänt på samtliga tre lärandemål. Lärandemål 1 (75%), Lärandemål 2 (50%), Lärandemål 3 (75%). Väl Godkänd: För väl godkänt resultat krävs väl godkänt resultat på minst 2 av lärandemålen. Lärandemål 1 (87%), Lärandemål 2 (75%), Lärandemål 3 (87%)

Skrivningsresultat bör offentliggöras inom 18 arbetsdagar

Lycka till!

Antal sidor totalt: 9

149

Omtentamen **Introduktion till kognitiv neurovetenskap och Medvetandets Neuropsykologi KU 107G**

Datum 2023-11-10,

kl. 08.15-12.30

Information

- Skriv ditt namn och personnummer överst på tentamens försättsblad (s. 1) samt på varje extra papper du använder. Skriv dessutom sidnummer på varje extra papper.
- OBS! Skriv namn och personnummer högst upp på Anttis 'answering sheet' och lämna in den tillsammans med din tentamen.
- Läs också igenom instruktionerna på tentamens försättsblad och de som finns i själva tentamen.
- Läs igenom frågorna noggrant.
- Du kan svara antingen på svenska eller på engelska.
- Svara så tydligt och klart som möjligt. Skriv så att det är lätt att läsa.
- Ordbok från modersmål till engelska är tillåten.

NAME: _____

Student ID Number: _____

ANSWER SHEET FOR EXAM: Introduction to Cognitive Neuroscience (Antti's part of the course) Re-Exam, November 10, 2023Please indicate your answer by coloring or strongly and clearly marking the correct answer (leaving the incorrect answer unmarked).

Question Number	Your Answer	
1.	TRUE	FALSE
2.	TRUE	FALSE
3.	TRUE	FALSE
4.	TRUE	FALSE
5.	TRUE	FALSE
6.	TRUE	FALSE
7.	TRUE	FALSE
8.	TRUE	FALSE
9.	TRUE	FALSE
10.	TRUE	FALSE
11.	TRUE	FALSE
12.	TRUE	FALSE
13.	TRUE	FALSE
14.	TRUE	FALSE
15.	TRUE	FALSE
16.	TRUE	FALSE
17.	TRUE	FALSE
18.	TRUE	FALSE
19.	TRUE	FALSE
20.	TRUE	FALSE
21.	TRUE	FALSE
22.	TRUE	FALSE
23.	TRUE	FALSE
24.	TRUE	FALSE
25.	TRUE	FALSE
26.	TRUE	FALSE
27.	TRUE	FALSE
28.	TRUE	FALSE
29.	TRUE	FALSE
30.	TRUE	FALSE
31.	TRUE	FALSE
32.	TRUE	FALSE
33.	TRUE	FALSE
34.	TRUE	FALSE
35.	TRUE	FALSE
36.	TRUE	FALSE
37.	TRUE	FALSE
38.	TRUE	FALSE
39.	TRUE	FALSE
40.	TRUE	FALSE
41.	TRUE	FALSE
42.	TRUE	FALSE
43.	TRUE	FALSE
44.	TRUE	FALSE
45.	TRUE	FALSE
46.	TRUE	FALSE
47.	TRUE	FALSE
48.	TRUE	FALSE
49.	TRUE	FALSE
50.	TRUE	FALSE

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Introduction to Cognitive Neuroscience

Re-Exam, November 10, 2023

Instructions:

All the questions in this part of the exam consist of statements that are either TRUE or FALSE.

Read each statement through slowly, and think about it carefully, before you decide your answer.

Then indicate your answer as clearly as possible, by crossing out or by drawing a strong circle around your answer (the word "true" or "false" in the answering sheet) on the line that has the same number as the corresponding question in the question sheet.

The exam consists of 50 statements. Each correct answer = 1p. Incorrect, empty or unclearly marked answers = 0 p.

QUESTIONS

Learning Goal: "What Is Science?" (20 Questions)

- 1) Human memory does not work like a video camera
- 2) According to "Scientific Realism", an invisible, deep reality with its own structure and order, really exists independent of what humans think or believe.
- 3) "Cognitive Neuroscience" can be defined as "The Biology of the Mind".
- 4) The only goal of academic studies is to learn all the facts about one's own field of study.
- 5) According to "Naive Realism", there is no difference between "Appearances" and "Reality".
- 6) According to Scientific Realism, scientific theories are instruments, narratives, and constructions that reflect human language and Western culture.

- 7) "Realism" in philosophy refers to the theory that we cannot be certain if anything exists outside of our own minds.
- 8) Early scientific theories about our galaxy claimed that it is a silvery river made out of milk that guides the migrating birds in their path.
- 9) If a scientific theory describes some part of reality in a way that exactly corresponds to how reality is in itself, then the theory has reached the "Truth" about that part of reality.
- 10) If science makes progress, then the degree of "verisimilitude" of scientific theories stays the same across time.
- 11) When a theory has a high degree of "truthlikeness", it can correctly describe what kind of things really exist in the world and how they behave.
- 12) Applications of science (such as technology and medicines) tend to work, because they interact with the invisible, deep structure of reality in predictable ways.
- 13) "Lysenkoism" led to an attempt to interact with biological reality by using a false theory of biology, but reality "resisted" such an interaction.
- 14) Subjective sources of knowledge are a necessary part of highly truthlike scientific theories.
- 15) Anybody can go and test the statements of science by themselves if they don't otherwise believe that what the scientists claim is the truth.
- 16) The theory of "Falsifiability" was discovered by Benjamin Rush when he treated yellow fever by bloodletting.
- 17) Einstein's theory made risky predictions and showed a lot of predictive power.
- 18) Any theory can be defended indefinitely against falsification by always blaming something else than the theory itself.
- 19) Albert Einstein is one of the "Absolute Authorities" in science.
- 20) Research results that have not yet been peer-reviewed but are already spreading in the media can lead to harmful "fake news".

Learning Goal: "What Is Cognitive Neuroscience?" (30 Questions)

- 21) Ancient Egyptians believed that the soul travels beyond the body during sleep.
- 22) In Plato's theory, the three different souls are located in the three ventricles in the brain.
- 23) In the cardiocentric view, the function of the brain is to keep the body alive and warm.
- 24) According to Descartes, the seat of the soul is located in the middle of the heart.
- 25) Ramon y Cajal was awarded the Nobel Prize for the discovery of "animal spirits" in the brain.
- 26) "The Neuron Doctrine" is in conflict with the more general biological "Cell Theory".
- 27) "Holism" about the structure and function of the brain is in harmony with "Anti-Localizationism" about mental functions in the brain.
- 28) Descartes and Flourens believed in a unified soul that cannot be divided into any parts.
- 29) Emanuel Swedenborg presented the first Phrenological theory about the shape and size of the skull.
- 30) Phrenological theorizing included some new and even quite modern ideas about the mind-brain relationship.
- 31) Phrenology included many questionable and fundamentally wrong ideas about how mental capacities can be measured.
- 32) In Broca's Aphasia, there is a dissociation between speech understanding (which is intact) and speech production (which is damaged).
- 33) In Wernicke's Aphasia, the damage in the brain is in the right frontal lobe, close to areas involved in hearing.
- 34) The ability to **name** different kinds of objects seems to be located close to the areas in the brain that are needed to **recognize** the same types of objects in perception.
- 35) Wilder Penfield is famous for his groundbreaking studies of electrical stimulation of the brain in conscious human patients.

- 36) In Cognitive Psychology, performance in a task is often measured by measuring how long time the task takes (response time) and how many errors were made in the task.
- 37) The Stroop task measures how quickly an individual can recognize faces.
- 38) To design an experiment in cognitive neuroscience, one should create tasks in which specific cognitive components can be turned "off" or "on" in a controlled manner.
- 39) "Converging evidence" is evidence coming from several independent sources that point to the same direction.
- 40) When looking at brain tissue, individual neurons can be seen even with the naked eye without any special research instruments.
- 41) The "Brodmann Areas" are a map of the different receptive fields of the neurons in the cortex.
- 42) "Structural" brain imaging methods pick up signals that reflect some aspects of brain metabolism.
- 43) "Spatial resolution" in brain imaging is "the minimum size of an image element where the image summarizes an area as differing from surrounding regions in terms of the amount of signals of received".
- 44) CT brain scans are based on the return currents that complete the electrical circuits in the brain.
- 45) In MEG neuroimaging, the anatomical brain image is based on variations in the magnetic "echo" signal that is different for different kinds of tissues inside the brain.
- 46) PET is not a structural brain imaging method.
- 47) PET imaging utilizes unstable radioactive isotopes that must be artificially produced.
- 48) Hans Berger believed in mental telepathy, which motivated him to search for and eventually discover EEG signals arising from the brain.
- 49) EEG cannot directly measure the primary or intracellular currents in neurons, but it can detect the extracellular or secondary currents.
- 50) Event-Related Potentials (ERPs) measure EEG wave frequency (Hz) or how many "waves" per second can be observed in the ongoing EEG signals.

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2023-11-10, kl. 08.15-12.30

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DEL 2 (Stefans del) - Introduction to Positive Psychology

Lärandemål 2: "Översiktligt beskriva centrala teorier och begrepp inom positiv psykologi".
(Totalt max 20 p för hela PP-delen. 10 p = G, 15 p = VG).

1 - Sant/Falsk frågor (Varje fråga ger max 1p. Det ges 1p för rätt markering, 0p för utelämnad markering, minus 1p för felaktig markering. Totalt 5 p för hela momentet.)

1. According to Martin Seligman, the reason people should abstain from drinking alcohol is not solely to avoid the discomfort of a hangover, but to savor the joys of being a sober, balanced, and self-controlled individual. He believes that the essence of a truly fulfilling life lies in enjoying life's simple pleasures. (1 point)
2. Well-being research indicates that well-being is enhanced when individuals choose to pursue goals that are feasible, realistic, and attainable. (1 point)
3. In the "happiness formula" ($H = S + C + V$), H represents happiness, S stands for sincerity, C represents concentration, and V denotes vitality. (1 point)
4. Barbara Fredrickson created MBSR (Mindfulness-based Social Resilience) and introduced it as an evidence-based program to increase social wellbeing. It is now widely used as a positive psychological intervention. (1 point)
5. Flow is almost always a positive mental state, but one of its few negative aspects is that it can become addictive. (1 point)

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2. Essäfrågor (Varje fråga ger max 5p; totalt 10 p för hela momentet.)

- (a) - How does Ed Diener propose to conceptualize wellbeing to facilitate empirical research on happiness? (5 p).
- (b) - What is the Broaden-and-Build Theory of Positive Emotions? (5 p).

3. Begreppsfrågor (Förklara tydligt och klart följande begrepp, max fem rader per begrepp [varje begrepp ger max 1p; totalt 5p för hela momentet]):

1. The Second Wave of Positive Psychology (1 p)
2. Epicureanism (1 p)
3. The VIA Classification (1 p)
4. The Satisfaction with Life Scale (SWLS) (1 p)
5. Eudaimonic happiness. (1p)