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STUDY & PRACTICE SERIES

THE HUMAN BRAIN

50 Multiple Choice Questions

Ticked & Highlighted Answers
with Detailed Explanations

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T1 Structure & Anatomy of the Brain

Question 1 1 / 50

What is the approximate weight of an average adult human brain?

A About 0.5 kg

B **About 1.4 kg** ✓

C About 3 kg

D About 5 kg

Explanation

Correct Answer: B) About 1.4 kg

The adult brain weighs roughly 1.3–1.4 kg (about 3 lb). Although it is only about 2% of body weight, it is the command centre of the whole body.

Question 2

2 / 50

Which is the largest part of the human brain?

A Cerebellum

B Brainstem

C **Cerebrum** ✓

D Thalamus

Explanation

Correct Answer: C) Cerebrum

The cerebrum makes up about 85% of the brain's weight. It handles thinking, sensing, voluntary movement and language, and is divided into two hemispheres.

Question 3

3 / 50

Which part of the brain mainly coordinates balance and fine muscle movement?

A Corpus callosum

B Hippocampus

C Amygdala

D **Cerebellum** ✓

Explanation

Correct Answer: D) Cerebellum

Located at the back beneath the cerebrum, the cerebellum fine-tunes movement, posture and balance. Damage can cause shaky, uncoordinated movement (ataxia).

Question 4

4 / 50

Which structure connects the left and right cerebral hemispheres?

- **A** Corpus callosum ✓
- **B** Pons
- **C** Thalamus
- **D** Medulla

Explanation

Correct Answer: A) Corpus callosum

The corpus callosum is a thick band of hundreds of millions of nerve fibres that lets the two hemispheres communicate and share information.

Question 5

5 / 50

What is the wrinkled outer layer of the cerebrum called?

A Meninges

B **Cerebral cortex** ✓

C Myelin sheath

D Ventricle

Explanation

Correct Answer: B) Cerebral cortex

The cerebral cortex is a thin layer of grey matter about 2–4 mm thick. Its folds (gyri and sulci) increase surface area so more neurons fit inside the skull.

Question 6

6 / 50

Which three parts together make up the brainstem?

- **A** Midbrain, pons and medulla oblongata ✓
- **B** Cerebrum, cerebellum and thalamus
- **C** Frontal, parietal and occipital lobes
- **D** Hippocampus, amygdala and hypothalamus

Explanation

Correct Answer: A) Midbrain, pons and medulla oblongata

The brainstem links the brain to the spinal cord and controls vital functions such as breathing, heart rate and consciousness.

Question 7

7 / 50

How many pairs of cranial nerves arise from the human brain?

A 8 pairs

B 10 pairs

C **12 pairs** ✓

D 31 pairs

Explanation

Correct Answer: C) 12 pairs

There are 12 pairs of cranial nerves serving smell, vision, hearing, taste, facial movement and more. The number 31 refers to pairs of spinal nerves.

Question 8

8 / 50

How many protective membrane layers (meninges) cover the brain?

A Two

B **Three** ✓

C Four

D Five

Explanation

Correct Answer: B) Three

The meninges have three layers: dura mater (outer), arachnoid mater (middle) and pia mater (inner). They cushion and protect the brain and spinal cord.

Question 9

9 / 50

Where is cerebrospinal fluid (CSF) mainly produced?

- **A** In the ventricles (choroid plexus) ✓
- **B** In the cerebellum
- **C** In the spinal cord
- **D** In the pituitary gland

Explanation

Correct Answer: A) In the ventricles (choroid plexus)

CSF is made by the choroid plexus inside the brain's ventricles. It cushions the brain, removes waste and provides buoyancy.

Question 10

10 / 50

Which structure acts as the brain's main sensory 'relay station'?

A Hypothalamus

B **Thalamus** ✓

C Cerebellum

D Pons

Explanation

Correct Answer: B) Thalamus

The thalamus receives sensory signals (except smell) and relays them to the correct areas of the cerebral cortex for processing.

T2 Neurons & Neurotransmitters

Question 11

11 / 50

What is the basic functional unit of the nervous system?

A Nephron

B Axon

C **Neuron** ✓

D Myelin

Explanation

Correct Answer: C) Neuron

The neuron is the specialised cell that sends and receives electrical and chemical signals. The human brain contains about 86 billion of them.

Question 12

12 / 50

Which part of a neuron receives incoming signals from other neurons?

A Axon terminal

B **Dendrites** ✓

C Myelin sheath

D Node of Ranvier

Explanation

Correct Answer: B) Dendrites

Dendrites are branch-like extensions that collect signals from other neurons and carry them toward the cell body.

Question 13

13 / 50

What is the main function of the myelin sheath?

A To store memories

B To produce neurotransmitters

C **To speed up nerve impulses** ✓

D To supply blood to the neuron

Explanation

Correct Answer: C) To speed up nerve impulses

Myelin is a fatty insulating layer around axons. It lets impulses jump between gaps (nodes of Ranvier), greatly increasing conduction speed.

Question 14

14 / 50

What is the tiny gap between two communicating neurons called?

- **A** Synapse ✓
- **B** Dendrite
- **C** Ventricle
- **D** Sulcus

Explanation

Correct Answer: A) Synapse

At the synapse, a neuron releases chemical messengers (neurotransmitters) that cross the gap and bind to receptors on the next cell.

Question 15

15 / 50

Which neurotransmitter is most associated with reward, motivation and pleasure?

A GABA

B Glutamate

C Acetylcholine

D **Dopamine** ✓

Explanation

Correct Answer: D) Dopamine

Dopamine drives motivation and reward-seeking behaviour. It also helps control movement; low levels are linked to Parkinson's disease.

Question 16

16 / 50

Serotonin mainly helps regulate which of the following?

A **Mood, sleep and appetite** ✓

B Blood clotting

C Bone growth

D Hearing sensitivity

Explanation

Correct Answer: A) Mood, sleep and appetite

Serotonin influences mood, sleep, appetite and digestion. Many antidepressants (SSRIs) work by increasing serotonin availability in the brain.

Question 17

17 / 50

Which neurotransmitter is the brain's main inhibitory messenger?

A Glutamate

B GABA ✓

C Adrenaline

D Dopamine

Explanation

Correct Answer: B) GABA

GABA (gamma-aminobutyric acid) reduces neuronal excitability and calms brain activity. Glutamate, in contrast, is the main excitatory neurotransmitter.

Question 18

18 / 50

Which neurotransmitter triggers muscle contraction at the neuromuscular junction?

A Serotonin

B Melatonin

C **Acetylcholine** ✓

D Insulin

Explanation

Correct Answer: C) Acetylcholine

Acetylcholine carries signals from motor neurons to muscle fibres. In the brain it is also important for learning and memory.

Question 19

19 / 50

Roughly how many neurons does the human brain contain?

A 86 million

B 860 million

C 8.6 trillion

D **86 billion** ✓

Explanation

Correct Answer: D) 86 billion

Modern estimates put the human brain at about 86 billion neurons, along with a similar number of supporting glial cells.

Question 20

20 / 50

What is the main role of glial cells in the brain?

A **To support, protect and nourish neurons** ✓

B Only to fill empty space

C To send all electrical signals

D To produce blood cells

Explanation

Correct Answer: A) To support, protect and nourish neurons

Glial cells (astrocytes, oligodendrocytes, microglia) support neurons, form myelin, clear debris and maintain the brain's chemical balance.

T3 Lobes & Brain Functions

Question 21 21 / 50

Which lobe is mainly responsible for reasoning, planning and decision-making?

A Occipital lobe

B Temporal lobe

C Parietal lobe

D **Frontal lobe** ✓

Explanation

Correct Answer: D) Frontal lobe

The frontal lobe, especially the prefrontal cortex, manages planning, judgement, problem-solving, personality and voluntary movement.

Question 22

22 / 50

Where is the primary visual cortex located?

A Frontal lobe

B Temporal lobe

C Cerebellum

D **Occipital lobe** ✓

Explanation

Correct Answer: D) Occipital lobe

The occipital lobe at the back of the brain processes visual information. Damage here can cause vision loss even when the eyes are healthy.

Question 23

23 / 50

Which lobe integrates touch, pressure, pain and spatial awareness?

- **A** Parietal lobe ✓
- **B** Frontal lobe
- **C** Occipital lobe
- **D** Temporal lobe

Explanation

Correct Answer: A) Parietal lobe

The parietal lobe contains the somatosensory cortex, which processes bodily sensations, and helps us judge position and space.

Question 24

24 / 50

Which lobe is chiefly involved in hearing and auditory processing?

A Parietal lobe

B Occipital lobe

C **Temporal lobe** ✓

D Frontal lobe

Explanation

Correct Answer: C) Temporal lobe

The temporal lobe, near the ears, contains the auditory cortex. It also contributes to language comprehension and memory formation.

Question 25

25 / 50

Broca's area is mainly responsible for which function?

A Understanding spoken words

B Seeing colours

C Controlling heartbeat

D **Producing speech** ✓

Explanation

Correct Answer: D) Producing speech

Broca's area, in the left frontal lobe, controls speech production. Damage causes slow, effortful speech while understanding stays fairly intact.

Question 26

26 / 50

Wernicke's area is mainly involved in which function?

- **A** Language comprehension ✓
- **B** Balance
- **C** Breathing
- **D** Vision

Explanation

Correct Answer: A) Language comprehension

Wernicke's area, in the left temporal lobe, is key for understanding spoken and written language. Damage can produce fluent but meaningless speech.

Question 27

27 / 50

In most people, which hemisphere is dominant for language?

A Right hemisphere

B **Left hemisphere** ✓

C Neither hemisphere

D The cerebellum

Explanation

Correct Answer: B) Left hemisphere

In most people (over 90% of right-handers), language functions are handled mainly by the left hemisphere.

Question 28

28 / 50

The primary motor cortex is located in which gyrus?

A Postcentral gyrus

B Cingulate gyrus

C Angular gyrus

D **Precentral gyrus** ✓

Explanation

Correct Answer: D) Precentral gyrus

The primary motor cortex lies in the precentral gyrus of the frontal lobe and sends commands for voluntary movement. The postcentral gyrus handles touch.

Question 29

29 / 50

Which structure regulates hunger, thirst, body temperature and the body clock?

A Thalamus

B Cerebellum

C Medulla oblongata

D **Hypothalamus** ✓

Explanation

Correct Answer: D) Hypothalamus

The hypothalamus maintains homeostasis. It controls hunger, thirst, temperature and sleep cycles, and directs hormone release via the pituitary gland.

Question 30

30 / 50

Which brainstem part controls vital reflexes such as breathing and heart rate?

A Pons

B Thalamus

C **Medulla oblongata** ✓

D Cerebellum

Explanation

Correct Answer: C) Medulla oblongata

The medulla oblongata regulates heartbeat, breathing and blood pressure, along with reflexes such as coughing, sneezing and swallowing.

T4 Memory, Sleep & Emotion

Question 31 31 / 50

Which brain structure is essential for forming new long-term memories?

A Amygdala

B **Hippocampus** ✓

C Pons

D Cerebellum

Explanation

Correct Answer: B) Hippocampus

The hippocampus, shaped like a seahorse, converts short-term experiences into long-term memories. It is among the first regions affected in Alzheimer's disease.

Question 32

32 / 50

Which almond-shaped structure is central to processing fear and emotional reactions?

A Hippocampus

B Thalamus

C **Amygdala** ✓

D Corpus callosum

Explanation

Correct Answer: C) Amygdala

The amygdala detects threats and triggers the fight-or-flight response. It also tags memories with emotional significance.

Question 33

33 / 50

Which stage of sleep is most associated with vivid dreaming?

- **A** REM sleep ✓
- **B** Stage 1 light sleep
- **C** Stage 3 deep sleep
- **D** Sleep onset

Explanation

Correct Answer: A) REM sleep

During REM (rapid eye movement) sleep, brain activity resembles wakefulness and most vivid dreams occur, while voluntary muscles are temporarily paralysed.

Question 34

34 / 50

Which hormone, released by the pineal gland, helps regulate the sleep–wake cycle?

A Insulin

B Cortisol

C Adrenaline

D **Melatonin** ✓

Explanation

Correct Answer: D) Melatonin

Melatonin is released in darkness and signals that it is time to sleep. Bright light, especially at night, can suppress it.

Question 35

35 / 50

According to Miller's classic research, short-term memory holds about how many items?

A 2 ± 1

B 4 ± 1

C **7 ± 2** ✓

D 12 ± 2

Explanation

Correct Answer: C) 7 ± 2

George Miller (1956) proposed 'the magical number seven, plus or minus two'. Later research suggests the true limit may be closer to four chunks.

Question 36

36 / 50

What is neuroplasticity?

A Hardening of brain tissue with age

B **The brain's ability to reorganise and form new connections** ✓

C The loss of neurons after injury

D The brain's electrical resting state

Explanation

Correct Answer: B) The brain's ability to reorganise and form new connections

Neuroplasticity lets the brain rewire itself in response to learning, experience or injury. It underlies skill learning and recovery after stroke.

Question 37

37 / 50

Which pair are both key parts of the limbic system?

A Cerebellum and pons

B Occipital lobe and medulla

C Corpus callosum and pineal gland

D **Hippocampus and amygdala** ✓

Explanation

Correct Answer: D) Hippocampus and amygdala

The limbic system, which governs emotion, motivation and memory, includes the hippocampus, amygdala, hypothalamus and cingulate gyrus.

Question 38

38 / 50

Riding a bicycle without consciously thinking about it is an example of which memory?

A **Procedural memory** ✓

B Episodic memory

C Semantic memory

D Sensory memory

Explanation

Correct Answer: A) Procedural memory

Procedural memory stores skills and habits such as cycling or typing. It relies heavily on the basal ganglia and cerebellum and is very durable.

Question 39

39 / 50

Long-term high levels of cortisol can damage which memory-related structure?

A Occipital cortex

B **Hippocampus** ✓

C Pons

D Corpus callosum

Explanation

Correct Answer: B) Hippocampus

Chronic stress keeps cortisol high, which can shrink dendrites and impair new neuron growth in the hippocampus, harming learning and memory.

Question 40

40 / 50

Which memory stores facts and general knowledge, like 'Paris is the capital of France'?

A Procedural memory

B Episodic memory

C **Semantic memory** ✓

D Working memory

Explanation

Correct Answer: C) Semantic memory

Semantic memory holds facts, concepts and word meanings. Episodic memory, by contrast, stores personal experiences tied to a time and place.

T5 Brain Health, Disorders & Facts

Question 41

41 / 50

Parkinson's disease is mainly caused by loss of neurons producing which neurotransmitter?

A Serotonin

B GABA

C **Dopamine** ✓

D Acetylcholine

Explanation

Correct Answer: C) Dopamine

Parkinson's arises from degeneration of dopamine-producing neurons in the substantia nigra, causing tremor, stiffness and slow movement.

Question 42

42 / 50

Which condition is the most common cause of dementia?

- **A** Alzheimer's disease ✓
- **B** Epilepsy
- **C** Migraine
- **D** Meningitis

Explanation

Correct Answer: A) Alzheimer's disease

Alzheimer's disease accounts for most dementia cases. Amyloid plaques and tau tangles gradually destroy neurons, beginning with memory.

Question 43

43 / 50

A stroke occurs when:

A The brain produces excess dopamine

B **Blood supply to part of the brain is interrupted** ✓

C Myelin grows too thick

D The skull presses on the spinal cord

Explanation

Correct Answer: B) Blood supply to part of the brain is interrupted

Ischaemic strokes (clots) and haemorrhagic strokes (bleeds) both deprive brain cells of oxygen and glucose, so rapid treatment is vital.

Question 44

44 / 50

Which test records the brain's electrical activity using electrodes on the scalp?

A MRI

B CT scan

C X-ray

D EEG ✓

Explanation

Correct Answer: D) EEG

An electroencephalogram (EEG) detects the electrical activity of neurons. It is widely used to diagnose epilepsy and to study sleep.

Question 45

45 / 50

About what percentage of the body's energy does the brain use?

A About 2%

B **About 20%** ✓

C About 50%

D About 75%

Explanation

Correct Answer: B) About 20%

Though only about 2% of body weight, the brain consumes roughly 20% of the body's energy, mostly as glucose and oxygen.

Question 46

46 / 50

Approximately what fraction of the brain is made up of water?

A About 25%

B About 50%

C **About 75%** ✓

D About 95%

Explanation

Correct Answer: C) About 75%

The brain is roughly 73–75% water, so even mild dehydration can affect concentration and mood.

Question 47

47 / 50

Epilepsy is characterised by:

A **Recurrent seizures from abnormal electrical discharges** ✓

B Progressive loss of memory only

C Sudden loss of vision with age

D Permanent paralysis of one side

Explanation

Correct Answer: A) Recurrent seizures from abnormal electrical discharges

Epilepsy involves sudden bursts of abnormal electrical activity in neurons, causing recurrent seizures. Most cases can be controlled with medication.

Question 48

48 / 50

Which technique uses strong magnetic fields and radio waves to create detailed brain images?

A X-ray

B Ultrasound

C PET scan

D **MRI** ✓

Explanation

Correct Answer: D) MRI

MRI gives detailed soft-tissue images without ionising radiation. Functional MRI (fMRI) shows active brain areas by tracking blood flow.

Question 49

49 / 50

What is the blood–brain barrier?

A. A bone that protects the brain

B. **A selective barrier controlling what enters the brain from blood** ✓

C. A hormone made by the hypothalamus

D. A fold in the cerebral cortex

Explanation

Correct Answer: B) A selective barrier controlling what enters the brain from blood

Tightly packed capillary cells and supporting glia keep most toxins and germs out while letting nutrients like glucose and oxygen pass.

Question 50

50 / 50

Which habits are best supported by research for protecting long-term brain health?

A Skipping sleep to study more

B Avoiding all physical activity

C **Regular exercise, good sleep and mental stimulation** ✓

D Eating only processed sugar

Explanation

Correct Answer: C) Regular exercise, good sleep and mental stimulation

Aerobic exercise boosts blood flow and growth factors (BDNF), sleep clears metabolic waste, and learning new skills builds cognitive reserve.

Quick Answer Key

Topic 1	Topic 2	Topic 3	Topic 4	Topic 5
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6 - A	16 - A	26 - A	36 - B	46 - C
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Topic 1: Structure & Anatomy of the Brain
Topic 2: Neurons & Neurotransmitters
Topic 3: Lobes & Brain Functions
Topic 4: Memory, Sleep & Emotion
Topic 5: Brain Health, Disorders & Facts



Well Done!

You completed all 50 MCQs on the Human Brain

Topics You Covered

- Structure & Anatomy of the Brain
- Neurons & Neurotransmitters
- Lobes & Brain Functions
- Memory, Sleep & Emotion
- Brain Health, Disorders & Facts

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