

HiYield Paper A(2)

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Grade 0.00 out of 100.00

Question 1

Not answered

Marked out of 1.00

 Flag question

HiY Neurophysiology 001

Which one of the following exists as CNS neurotransmitter as well as a hormone?

Select one:

- Glucagon
- Serotonin
- Vasopressin
- Dopamine
- Thyroxine

Check


Neuropeptides (e.g., endorphins, enkephalins, vasopressin) exist as neurotransmitters and as hormones. By clinging to the nerve cell membrane for varying periods of time, they can modulate the flow of information. Thus, they are referred to as neuromodulators.

The correct answer is: Vasopressin

Question 2

Not answered

Marked out of 1.00

 Flag question

HiY Neurophysiology 002

EEG changes in Angelman's syndrome are notable by the age of

Select one:

- Soon after birth
- Two years
- Puberty
- 7 years
- 21 years

Check


In Angelman syndrome, EEG changes are notable by the age of 2. Prolonged runs of high amplitude 2-3 Hz frontal activity with superimposed interictal epileptiform discharges are seen in all ages More than 2. Occipital high amplitude rhythmic 4-6 Hz activity facilitated by eye closure is seen under the age of 12 years. There is no difference in EEG findings in AS patients with or without seizures (Angelman syndrome: is there a characteristic EEG?, <http://www.ncbi.nlm.nih.gov/pubmed/15668045> (accessed April 13, 2015)).

The correct answer is: Two years

Question 3

Not answered

Marked out of 1.00

 Flag question

HiY Neurophysiology 003

Peak cortisol level in normal physiological states is seen at

Select one:

- 10 AM
- 4 AM
- 8 AM
- 6 AM
- 2 PM

Check


A diurnal variation in ACTH and cortisol levels occurs in humans, with peak cortisol levels occurring around 6:00-7:00 AM.

The correct answer is: 6 AM

Question 4

Not answered

Marked out of 1.00

 Flag question

HiY Neurophysiology 004

The resting membrane potential of a neuron is around

Select one:

- 170 mv
- 70 Mv
- 30 Mv
- 30 mv
- 70mV

Check

There is a negative resting membrane potential of around 70 mv. It is maintained by the sodium pump, which actively transports sodium ions out of the cell and potassium ions into the cell. The ATP provides the energy.

The correct answer is: -70mV

Question 5

Not answered

Marked out of 1.00

HiY Neurophysiology 005

The duration of normal sleep latency in healthy adults is

Flag question

Select one:

- 15-20 minutes
- 30-40 minutes
- 0-5 minutes
- 90-100 minutes
- 50-60 minutes

Check

Sleep latency is the time from lights out to sleep onset. A sleep onset latency of 15 to 20 minutes is indicative of "little or no" sleep debt. REM latency: Time from sleep onset to first REM episode. Normally it is about 90 minutes in adults.

The correct answer is: 15-20 minutes

Question 6

Not answered

Marked out of 1.00

Flag question

HiY Neurophysiology 006

Infants have a dominant rhythm in which of the following EEG wave frequency?

Select one:

- 3 Hz
- 10 Hz
- 13 Hz
- 40 Hz
- 7 Hz

Check

The infants have a dominant rhythm of 3 Hz, the dominant frequency increases with maturation. In the newborn, the EEG is dominated by delta and theta waves.

The correct answer is: 3 Hz

Question 7

Not answered

Marked out of 1.00

Flag question

HiY Neurophysiology 007

What percentage of epileptic patients will have normal EEG between attacks?

Select one:

- 70-90%
- 1-2%
- 10-15%
- 30-50%
- 5-10%

Check


The value of the EEG is that it can suggest an abnormal function in the presence of normal structure. 10-15% of normal individuals show some abnormality of the EEG. 30-50% of epileptic patients will have normal EEG between attacks.

The correct answer is: 30-50%

Question 8

Not answered

Marked out of 1.00

 Flag question

HiY Neurophysiology 008

Regarding major depression, which of the following statements on neuroendocrine abnormalities is correct?

Select one:

- Large dose of cortisol exacerbates depressive symptoms
- 50% of patients show raised cortisol levels
- Low levels of corticotrophin releasing factor is found in CSF of patients
- Dehydroepinandrosterone levels are low
- Atrophy of adrenal cortex is seen in 20% of patients

Check


Many depressed patients have a high level of cortisol in plasma and urine. It is now known that 50% of depressed patients exhibit hypercortisolemia.

The correct answer is: 50% of patients show raised cortisol levels

Question 9

Not answered

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 Flag question

HiY Neurophysiology 009

Peak cortisol level in normal individuals is noted around

Select one:

- 12 AM Mid night
- 9 AM after breakfast
- 6 AM in the morning
- 12 PM Mid day
- 6 PM in the evening

Check


A diurnal variation in ACTH and cortisol levels occurs in humans, with peak cortisol levels occurring around 6:00-7:00 AM.

The correct answer is: 6 AM in the morning

Question 10

Not answered

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 Flag question

HiY Neurophysiology 010

A 42-year-old man is a journalist. He goes to sleep at 10PM every night and wakes up at 530AM every morning. If he volunteers for a sleep study using polysomnogram the time from sleep onset to first REM episode will be

Select one:

- 30 minutes
- 60 minutes
- 160 minutes
- 10 minutes
- 90 minutes

Check


REM latency: Time from sleep onset to first REM episode. Normally it is about 90 minutes in adults.

The correct answer is: 90 minutes

Question 11

Not answered

Marked out of 1.00

 Flag question

HiY Neurophysiology 011

Regular 3 Hz complexes are seen in EEG of patients with which of the following conditions?

Select one:

- ADHD
- CJD
- Antisocial personality disorder
- Angleman's syndrome
- Absence seizures

Check


Regular 3 Hz complexes are commonly seen in EEG of patients with Absence seizures (Petit-mal type of epilepsy)

The correct answer is: Absence seizures

Question 12

Not answered

Marked out of 1.00

 Flag question

HiY Neurophysiology 012

A patient is administered 1g of dexamethasone at 11PM, and his plasma samples are collected to measure hormone levels on the following morning. Which of the following is correct concerning the physiological changes overnight?

Select one:

- ACTH levels are suppressed
- CRH levels are increased
- Glucocorticoid receptors are blocked
- Prolactin levels are increased
- Cortisol levels are increased

Check


The dexamethasone suppression test (DST) is used to demonstrate a failure of feedback suppression of ACTH/CRH and continuous production of endogenous cortisol despite administration of exogenous steroid (dexamethasone). Normally administering dexamethasone must reduce cortisol in plasma. This is because of intact HPA function leading to reduced ACTH and CRH. In depression and other psychiatric hypercortisolemic states (also in organic hypercortisolemic states such as Cushing's), this does not occur.

The correct answer is: ACTH levels are suppressed

Question 13

Not answered

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 Flag question

HiY Neurophysiology 013

Mr. Y presents to the emergency department with a history of apathy and weight loss. On further investigations, he has hyponatraemia and hyperkalemia. What is his possible diagnosis?

Select one:

- Acute porphyria
- Cushing's syndrome
- Cohn's syndrome
- Diabetes insipidus
- Addison's disease

Check


The most common symptoms of Addison's disease are fatigue, lightheadedness, muscle weakness, apathy, fever, weight loss, anxiety, nausea, vomiting, diarrhea, headache, sweating, changes in mood and personality, joint and muscle pains. Some have marked cravings for salt or salty foods due to hyponatraemia. Affected individuals may note increased tanning since adrenal insufficiency is manifested in the skin primarily by hyperpigmentation. Other features include hypoglycemia, low blood pressure, hyperkalemia and hypercalcemia

The correct answer is: Addison's disease

Question 14

Not answered

Marked out of 1.00

 Flag question

HiY Neurophysiology 014

Which type of EEG trace is expected when eyes are closed during relaxation?

Select one:

- Gamma
- Beta
- Theta
- Alpha
- Delta

Check


Alpha waves are predominant when eyes are closed, but the patient is not sleeping.

The correct answer is: Alpha

Question 15

Not answered

Marked out of 1.00

 Flag question

HiY Neurophysiology 015

Which one of the following is characteristic of REM sleep?

Select one:

- Atonia
- Reduced recall of dreaming if awoken
- Decreased heart rate
- Abolition of tendon reflexes
- Upward ocular deviation with few or no movements


Features of REM sleep include Increased recall of dream if awoken, Increased sympathetic activity, Increased heart rate, systolic blood pressure, respiratory rate & cerebral blood flow, Penile erection or vaginal blood flow, Increased protein synthesis, Occasional myoclonic jerks, Maximal loss of muscle tone and transient runs of conjugate ocular movements. Nightmares occur in REM sleep - hence they are well recollected

The correct answer is: Atonia

Question 16

Not answered

Marked out of 1.00

 Flag question

HiY Neurophysiology 016

Which one of the following classes of drugs increases beta activity?

Select one:

- Lithium
- Anticonvulsants
- Benzodiazepines
- Antipsychotics
- Antidepressants


Antipsychotics and antidepressants produce slowing of beta activity with an increase in theta and delta activity. Alcohol, Barbiturates and Benzodiazepines increases beta activity, frequently mixed with low-amplitude theta activity. Lithium may produce some slowing of the alpha rhythm. Anticonvulsants, analgesics, beta blockers and narcotics have little effect on the EEG

The correct answer is: Benzodiazepines

Question 17

Not answered

Marked out of 1.00

 Flag question

HiY Neurophysiology 017

Which one of the following ions is freely permeable across cell membranes?

Select one:

- Chloride ions
- All of the listed options
- Sodium ions

- Potassium ions
- Organic ions

Check

Potassium ions-Relatively permeable Sodium ions-relatively impermeable Chloride ions-freely permeable Organic ions-relatively impermeable

The correct answer is: Chloride ions

Question 18

Not answered

Marked out of 1.00

Flag question

HiY Neurophysiology 018

Which of the following receptor on stimulation leads to sleep onset?

Select one:

- Noradrenergic - receptors
- 5HT2 receptors
- Glucocorticoid receptors
- Histaminergic receptors
- Cholinergic receptors

Check

The noradrenergic rapid eye movement (REM)-OFF neurons in locus coeruleus and cholinergic REM-ON neurons in tegmentum show a reciprocal firing pattern. The REM-ON neurons fire during REM sleep whereas REM-OFF neurons stop firing during REM sleep.

<http://www.ncbi.nlm.nih.gov/pubmed/17704548>

The correct answer is: Cholinergic receptors

Question 19

Not answered

Marked out of 1.00

Flag question

HiY Neurophysiology 019

1-2 Hz shaped wave pattern is seen in

Select one:

- Hepatic encephalopathy
- Huntington's disease
- Alzheimer's disease
- CJD
- Multi-infarct dementia

Check


The classic EEG finding in CJD is generalized 1-2 Hz bi- or triphasic sharp- and slow-wave complexes. These may not appear until very late in the clinical course, if at all, and may require repeated testing. The earliest EEG finding is more often rhythmic generalized slowing.

The correct answer is: CJD

Question 20

Not answered

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 Flag question

HiY Neurophysiology 020

A 3 months old newborn undergoes awake EEG investigation to detect seizure activity, but no abnormalities were found. Which of the following waveform will be prominent in the recording?

Select one:

- Delta and theta
- Spindle waves
- Alpha and beta
- Mu and lambda
- K complexes


Newborns have dominant delta and theta waves. Infants have irregular medium- to high-voltage delta activity in the awake tracing of the infant; alpha range develops in posterior areas by early childhood; by mid-adolescence EEG essentially has the appearance of an adult tracing. The normal dominant alpha rhythm is usually achieved by 12-14 years old

The correct answer is: Delta and theta

Question 21

Not answered

Marked out of 1.00

 Flag question

HiY Neurophysiology 021

The levels of ACTH and CRF is increased and plays an important role in the neuroendocrinology of;

Select one:

- Autism
- Dementia
- Schizophrenia
- Depression
- Bipolar disorder

The dexamethasone suppression test (DST) is used to demonstrate a failure of feedback suppression of ACTH/CRH and continuous production of endogenous cortisol despite administration of exogenous steroid (dexamethasone). Normally administering dexamethasone must reduce cortisol in plasma. This is because of intact HPA function leading to reduced ACTH and CRH. In depression and other psychiatric hypercortisolemic states (also in organic hypercortisolemic states such as Cushing's), this does not occur, and ACTH/CRF levels are raised.

The correct answer is: Depression

Question 22

Not answered

Marked out of 1.00

HiY Neurophysiology 022

Which of the following associated with neuroendocrine changes during sleep is correct?

Flag question

Select one:

- Testosterone decreases when sleep starts
- GH decreases when sleeping
- Cortisol shoots up in slow wave sleep
- During REM sleep melatonin decreases
- Prolactin decreases in early morning sleep

Check

Melatonin regulates circadian rhythms. It has both synchronizing and phase-shifting properties in the regulation of biological rhythms. It reduces during REM sleep.

The correct answer is: During REM sleep melatonin decreases

Question 23

Not answered

Marked out of 1.00

Flag question

HiY Neurophysiology 023

Generalised spike-wave discharges with decreased waves on photic stimulation are seen in EEG of patients with;

Select one:

- Myoclonic spilepsy
- Absence seizures
- Generalised seizures
- CJD
- Angelmann syndrome

Check

A decreased wave on photic stimulation followed by generalised spike and wave discharges is seen in patients with generalised tonic-clonic seizures.

The correct answer is: Generalised seizures

Question 24

Not answered

Marked out of 1.00

Flag question

HiY Neurophysiology 024

Which of the following disorders is characterised by a predominant presence of triphasic waves in EEG?

Select one:

- Head injury
- Depressive pseudodemntia
- Herpes simplex encephalitis
- Dementia of Alzheimer's type
- Hepatic encephalopathy

Check


Triphasic waves (1.5 to 3.0 per second high-voltage slow-waves) are a distinctive but nonspecific electroencephalographic (EEG) pattern originally described in a stuporous patient as 'blunted spike and wave.' Since their findings were limited to patients with hepatic failure, triphasic wave encephalopathy (TWE) became synonymous with hepatic encephalopathy. Since then, TWE has been associated with a wide range of toxic, metabolic, and structural abnormalities (Excerpt from EEG Triphasic Waves - Medscape Reference, <http://emedicine.medscape.com/article/1139819-overview> (accessed April 13, 2015).)

The correct answer is: Hepatic encephalopathy

Question 25

Not answered

Marked out of 1.00

 Flag question

HiY Neurophysiology 025

Flattened trace of EEG is a feature seen in

Select one:

- Petitmal epilepsy
- Creutzfeldt Jacob disease
- Delirium
- Partial seizures
- Huntington's disease

Check


A significant reduction in voltage with a predominant absence of alpha rhythms, sometimes leading to flat traces, is seen in Huntington's disease.

The correct answer is: Huntington's disease

Question 26

Not answered

Marked out of 1.00

 Flag question

HiY Neurophysiology 026

Which one of the following is not a characteristic feature of Kleine-Levin syndrome?

Select one:

- Episodic nature
- Hypersomnia
- Male predominance
- Hyper sexuality
- Hyperphagia

Check

Kleine-Levin syndrome affects males predominantly, the sufferers are usually under the age of 25, patient sleeps for 20 hours or more per day during an episode and it can last for several days. Hypersomnia and Hyperphagia are the important characteristic features.

The correct answer is: Hyper sexuality

Question 27

Not answered

HiY Neurophysiology 027

REM sleep includes which of the following physiological features?

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Flag question

Select one:

- Abolition of tendon reflexes
- Increased parasympathetic activity
- Reduced heart rate
- Increased recall of dream if awoken
- Reduced cerebral blood flow

Check

Features of REM sleep: 1. Increased recall of dream if awoken 2. Increased sympathetic activity 3. Increased heart rate, systolic blood pressure, respiratory rate, cerebral blood flow 4. Penile erection or vaginal blood flow 5. Increased protein synthesis 6. Occasional myoclonic jerks 7. Maximal loss of muscle tone 8. Transient runs of conjugate ocular movements. Features of non-REM sleep 1. Reduced recall of dreaming if awoken 2. Increased Parasympathetic activity 3. Decreased heart rate, systolic blood pressure, respiratory rate, cerebral blood flow 4. abolition of tendon reflexes 5. An upward ocular deviation with few or no movements.

The correct answer is: Increased recall of dream if awoken

Question 28

Not answered

Marked out of 1.00

Flag question

HiY Neurophysiology 028

Which of the following brain regions when stimulated via magnetic pulse reduces depression?

Select one:

- Right temporal
- Left prefrontal
- Right occipital
- Left temporal
- Right parietal

Check

Magnetic stimulation may have therapeutic effects in affective disorders similar to ECT. Few studies have reported a beneficial effect of left prefrontal rTMS in severe depression.

The correct answer is: Left prefrontal

Question 29

Not answered

Marked out of 1.00

Flag question

HiY Neurophysiology 029

The delta waves have a frequency of

Select one:

- 13-40 Hz
- 8-13 Hz
- 3.5-7.5 Hz
- 7-11 Hz
- Less than 4 Hz

Check


EEG-Different wave forms are classified by frequency: Alpha-8-13Hz Beta 13-40 Hz Theta 4-8 Hz Delta-less than 4Hz

The correct answer is: Less than 4 Hz

Question 30

Not answered

Marked out of 1.00

 Flag question

HiY Neurophysiology 030

REM rebound on cessation is seen with the use of which of the following?

Select one:

- Zolpidem
- Modafinil
- SSRIs
- Methylphenidate
- Inhalants

Check


Stimulants reduce the total sleep time by decreasing both REM sleep and Slow Wave Sleep. On cessation of stimulants (except modafinil), REM rebound occurs.

The correct answer is: Methylphenidate

Question 31

Not answered

Marked out of 1.00

 Flag question

HiY Neurophysiology 031

The frequency of β waves seen in normal EEG is

Select one:

- 8-13 Hz
- More than 40Hz
- 4-8Hz
- Less than 7 Hz
- More than 13Hz

Check

EEG-Different wave forms are classified by frequency: Alpha: 8-13Hz Beta: 13-40 Hz Theta: 4-8 Hz Delta: less than 4Hz

The correct answer is: More than 13Hz

Question 32

Not answered

Marked out of 1.00

HiY Neurophysiology 032

Which of the following statement concerning REM sleep is INCORRECT?

Select one:

Flag question

- EEG shows activity similar to awake state
- Rapid eye movements are noted
- Cardiac activity is similar to awake state
- Muscle tone is similar to awake state
- Penile erection occurs

Check

Criteria for REM sleep includes not only rapid eye movement, but also low muscle tone and an EEG pattern that is for most part similar to awake stage or stage 1 sleep but with intermittent appearance of rapid, low-voltage EEG (saw tooth pattern) . (Ref: Vaughn & Bazil, Sleep Disorders -Chapter 18: Merritt's Neurology)

The correct answer is: Muscle tone is similar to awake state

Question 33

Not answered

Marked out of 1.00

Flag question

HiY Neurophysiology 033

Orexin (hypocretin) neurons are dysfunctional in which of the following disorders?

Select one:

- Obesity
- Catatonia
- Chorea
- Anorexia
- Narcolepsy

Check

The VLPO- ventrolateral preoptic nuclei - induces sleep by putting the brakes on the arousal nuclei. This switching is stabilised by orexin neurons (also called hypocretin) from the hypothalamus. Patients with narcolepsy have few orexin neurons in the hypothalamus. Orexin neurons are mainly active during wakefulness and reinforce the arousal system.

The correct answer is: Narcolepsy

Question 34

Not answered

Marked out of 1.00

Flag question

HiY Neurophysiology 034

Which one of the following statements is true about normal EEG?

Select one:

- The normal dominant alpha rhythm is usually achieved by 8-10 years old
- Closing the eyes usually abolishes the dominant alpha rhythm.
- Ongoing delta activity when awake is almost always abnormal in the adult
- Beta activity is almost always abnormal in the adult
- The dominant alpha rhythm is seen in the Fronto-temporal region.

Check

The normal dominant alpha rhythm is usually achieved by 12-14 years old. The dominant alpha rhythm is seen posteriorly in the occipito-parietal region. Opening the eyes, concentrating, arousal states and anxiety usually abolishes the dominant alpha rhythm. Ongoing delta activity is almost always abnormal in the adult. Some Beta activity is seen in most adults, predominantly pre-central. Small amounts of theta activity are normal in adults.

The correct answer is: Ongoing delta activity when awake is almost always abnormal in the adult

Question 35

Not answered

Marked out of 1.00

Flag question

HiY Neurophysiology 035

Which of the following is a posterior pituitary hormone?

Select one:

- Melatonin
- Gonadotrophin
- Prolactin
- Testosterone
- Oxytocin

Check

Vasopressin (ADH - antidiuretic hormone) and oxytocin are peptides differing from each other in only two amino acids in their sequences. Both are synthesized in the supraoptic nuclei and paraventricular nuclei of the hypothalamus. (posterior pituitary hormones)

The correct answer is: Oxytocin

Question 36

Not answered

Marked out of 1.00

Flag question

HiY Neurophysiology 036

At resting membrane potential which ion is greatest in concentration inside the cell?

Select one:

- Chloride
- Calcium
- Sodium
- Magnesium
- Potassium

Check

At resting membrane potential, there are more potassium ions inside and more sodium ions outside the plasma membrane

The correct answer is: Potassium

Question 37

Not answered

HiY Neurophysiology 037

Mrs. X is a patient with bipolar affective disorder with secondary amenorrhea. The investigation to be done is

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Flag question

Select one:

- Serum testosterone levels
- FSH and LH levels
- Thyroid levels
- Pregnancy test
- Serum prolactin levels

Check

The most common cause of secondary amenorrhoea is pregnancy. Also, anticonvulsants used in bipolar disorder can reduce the efficacy of oral contraceptives.

The correct answer is: Pregnancy test

Question 38

Not answered

Marked out of 1.00

Flag question

HiY Neurophysiology 038

Which of the following is associated with low levels of cortisol?

Select one:

- PTSD
- Depression
- Anorexia
- Psychosis
- Mania

Check

In PTSD hypocortisolemia is seen in a subgroup of patients; this may be due to aberrant feedback to the pituitary due to excessive glucocorticoid receptors - probably a genetic vulnerability.

The correct answer is: PTSD

Question 39

Not answered

Marked out of 1.00

Flag question

HiY Neurophysiology 039

Which of the following physiological changes are noted after ECT in clinically depressed individuals?

Select one:

- Reduced noradrenaline turnover
- Beta waves predominance in EEG
- Reduced β receptors
- Increased α_2 receptors
- Increase in 5HT₂ receptors

Check


After ECT treatment, EEG immediately shows delta and theta excess but returns to normal levels after three months of the end of treatment. Reduced β noradrenergic receptor and increased noradrenaline turnover is also noted. Alpha 2 receptors are reduced in a change that is similar to antidepressants. Brain 5-HT₂ receptors were considered potential targets for therapeutic efficacy of electroconvulsive therapy (ECT), but pre-clinical studies showed that electroconvulsive shock up-regulates 5-HT₂ receptors in contrast to antidepressant medications, which down-regulate brain 5-HT₂ receptors. Using an [¹⁸F]setoperone PET scan Yatham and Liddle (2010) have now demonstrated that unlike in rodents, and similar to antidepressants, ECT reduces brain 5-HT₂ receptors in individuals with depression.

The correct answer is: Reduced β receptors

Question 40

Not answered

Marked out of 1.00

 Flag question

HiY Neurophysiology 040

Which of the following sleep EEG changes is seen when taking benzodiazepines for insomnia?

Select one:

- Increased slow wave sleep
- Reduced stage 1 sleep
- Reduced stage 2 sleep
- Increased REM sleep
- Reduced REM latency

Check


Multiple sleep-related changes including a decrease in sleep latency, increased sleep time, reduced stage 1 sleep, increased stage 2 sleep, reduced REM and Slow Wave Sleep, and REM rebound on cessation are seen with benzodiazepines.

The correct answer is: Reduced stage 1 sleep

Question 41

Not answered

Marked out of 1.00

 Flag question

HiY Neurophysiology 041

Which of the following stages of sleep predominates in a neonate?

Select one:

- Stage 2 sleep
- Stage 3 sleep
- Stage 4 sleep
- Stage 1 sleep
- REM sleep

Check


Newborns sleep about 16 hours a day. They spend More than 50% of sleep time in REM sleep. Sleep-onset REM is also seen in neonates.

The correct answer is: REM sleep

Question 42

Not answered

Marked out of 1.00

 Flag question

HiY Neurophysiology 042

Regarding the neuronal resting membrane potential, which of the following is true?

Select one:

- Hyperpolarise with moving out of chloride.
- Depolarise with rapid moving out of sodium.
- Repolarise with moving out of potassium
- Repolarise with rapid cellular entry of sodium.
- Depolarise with rapid cellular entry of potassium.


An action potential is initiated in the axon hillock when the synaptic signals received by the dendrites and soma are sufficient to raise the intracellular potential from -70 mV to the threshold potential of -55mV. When this potential is reached, the Na⁺ channels present in the axon initial segment will open. This Na⁺ influx causes a rapid reversal of the membrane potential from -90 to +40 mV. When the membrane potential reaches +40mV, the Na⁺ channels close and the voltage-gated K⁺ channels open. K⁺ ions move out of the axon, and 'repolarizes' the membrane.

The correct answer is: Repolarise with moving out of potassium

Question 43

Not answered

Marked out of 1.00

 Flag question

HiY Neurophysiology 043

A 34-year-old patient who is taking sulpride undergoes EEG investigation for detecting drug-related EEG changes. What would you expect to see?

Select one:

- decrease in delta activity
- new onset spike and waves
- decrease in alpha activity
- slowing of beta activity
- decrease in theta activity


Slowing of beta activity with an increase in alpha, theta and delta activity is seen with antipsychotics.

The correct answer is: slowing of beta activity

Question 44

Not answered

Marked out of 1.00

 Flag question

HiY Neurophysiology 044

K complexes during sleep EEG are seen during

Select one:

- Stage 3 sleep
- Stage 4 sleep
- Stage 2 sleep

- Stage 1 sleep
- REM sleep

Check


The K-Complex is a phasic transient EEG activity that occurs around once every 2-3 minutes during stage 2 non-REM sleep. In REM sleep, the K-Complex cannot be elicited even by an external stimulus.

The correct answer is: Stage 2 sleep

Question 45

Not answered

Marked out of 1.00

 Flag question

HiY Neurophysiology 045

There is a nocturnal surge in the level of growth hormones during which of the following stages of sleep?

Select one:

- After waking up
- All stages of sleep
- Stage 1 and 2 n-REM sleep
- Stage 3 and 4 n-REM sleep
- REM sleep

Check


The growth hormone regulates carbohydrate and lipid metabolism. There is a nocturnal surge during slow wave sleep. Its release is inhibited by somatostatin, and it inhibits the peripheral production of the Insulin-like growth factor (IGF-1).

The correct answer is: Stage 3 and 4 n-REM sleep

Question 46

Not answered

Marked out of 1.00

 Flag question

HiY Neurophysiology 046

Which stages of sleep are considered as slow wave sleep?

Select one:

- Stage 1 and 2 n-REM sleep
- Stage 3 and 4 n-REM sleep
- Stage 0 and 1 n-REM sleep
- REM sleep
- Stage 2 and 3 n-REM sleep

Check

REM sleep: The eyes undergo rapid movements, and there is a high level of brain activity. Non-REM sleep: There is reduced neuronal activity. Stage 3 and 4 of NREM are grouped as slow wave sleep because the slow delta waves predominate in these two stages.

The correct answer is: Stage 3 and 4 n-REM sleep

Question 47

Not answered

Marked out of 1.00

Flag question

HiY Neurophysiology 047

An EEG showing high amplitude repetitive bilaterally synchronous symmetrical polyphasic sharp wave and slow wave complexes, which occur every 4-15 seconds are characteristic of

Select one:

- Neurosyphilis
- Creutzfeldt Jacob disease
- Herpes simplex encephalitis
- Sub acute sclerosing pan encephalitis
- Absence seizures

Check

CJD-Periodic stereotyped discharges in the EEG at a rate of about 1 per second Herpes simplex encephalitis-episodic discharges recurring every 1-3 seconds with variable focal waves over the temporal areas. Neurosyphilis- non-specific increase in slow waves occurring diffusely over the scalp. Absence seizures-multiple spike and slow wave complexes, Regular 3 Hz Complexes.

The correct answer is: Sub acute sclerosing pan encephalitis

Question 48

Not answered

Marked out of 1.00

Flag question

HiY Neurophysiology 048

The brain region that acts as monitor of circadian rhythm is

Select one:

- Hippocampus
- Suprachiasmatic nucleus
- Locus ceruleus
- Nucleus accumbens
- Dorsal medial thalamus

Check

The master clock of the brain is the suprachiasmatic nucleus (SCN) located in the anterior hypothalamus - this orchestrates circadian rhythms and is synchronized by signals from the retina.

The correct answer is: Suprachiasmatic nucleus

Question 49

Not answered

Marked out of 1.00

Flag question

HiY Neurophysiology 049

A 47-year-old lady presents with low mood and lethargy. She is noted to have a history of untreated hypothyroidism. Which of the following is inconsistent with a diagnosis of hypothyroidism?

Select one:

- Increased TSH levels in blood
- Cold intolerance
- Decreased libido
- Weight gain
- Tachycardia

Check


Features of hypothyroidism are: Fatigue, Depressed mood, Weight gain, Decreased libido, Cold intolerance, Psychomotor retardation, Dry skin and Poor memory.

The correct answer is: Tachycardia

Question 50

Not answered

Marked out of 1.00

 Flag question

HiY Neurophysiology 050

The EEG wave with a frequency of 4 to 8 Hz is

Select one:

- Theta
- Delta
- Alpha
- Gamma
- Beta

Check


EEG-Different wave forms are classified by frequency: Alpha: 8-13Hz Beta: 13-40 Hz Theta: 4-8 Hz Delta: less than 4Hz. Theta and delta are also called slow waves due to their low-frequency band.

The correct answer is: Theta

Question 51

Not answered

Marked out of 1.00

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HiY Neurophysiology 051

Which of the following is an innovative treatment with some beneficial effect in dystonia?

Select one:

- Vagal nerve stimulation
- Transcranial magnetic stimulation (rTMS)
- Leucotomy
- Behavioural reversal therapy
- Nerve ablation

Check

Repetitive transcranial magnetic stimulation (rTMS) is being increasingly explored as a therapeutic tool for depression, schizophrenia and movement disorders associated with deficient inhibition throughout the central nervous system. There is some evidence for its use in dystonia as well though the evidence is very preliminary compared to the convincing evidence in the treatment of depression and hallucinations.

The correct answer is: Transcranial magnetic stimulation (rTMS)

Finish review