

# Histology MCQs/Nerve Tissue

1 What is an **axonal transport**?

- Transportation of a material inside microtubules
- Transportation of a material along microtubules
- Spreading of a signal inside axons
- Spreading of a signal along axons

2 What is a **Bergman's glia**?

- Microglial cells in the cerebellum
- Microglial cells in the retina
- Astrocytes in the cerebellum
- Astrocytes in the retina

3 Which type of neurons are **Betz pyramidal cells** (Betz pyramides)?

- Unipolar neurons
- Pseudounipolar neurons
- Bipolar neurons
- Multipolar neurons

4 What is main function of the **choroid plexus**?

- Peristaltic movement of the cerebrospinal fluid
- Mechanical support of cavities inside brain
- Production of the cerebrospinal fluid
- Resorption of the cerebrospinal fluid

5 Which cells contain **glial fibrillary acidic protein** (GFAP)?

- Oligodendrocytes
- Microglial cells
- Astrocytes
- Neurons

6 Which intracellular structure contains **glial fibrillary acidic protein** (GFAP)?

- Intermediate filaments
- Skeleton of nucleus
- Golgi apparatus
- Microtubules

7 Which type of nerve fibers takes place inside the peripheral nerve?

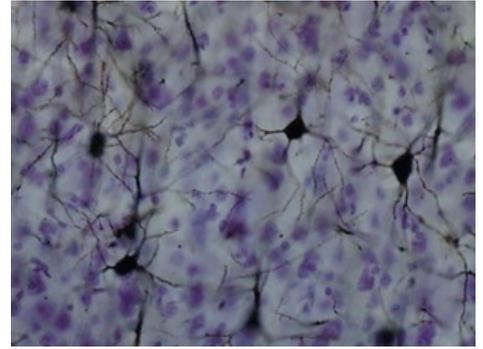
- Both myelinated and unmyelinated
- Myelinated only
- Unmyelinated only
- Mainly unmyelinated, but occasionally also myelinated

8 Embryonic origin of **astrocytes**:

- Neural crest
- Neural tube
- Mesenchyme
- Ectoderm

9 Embryonic origin of **microglial cells**:

- Endoderm
- Mesenchyme
- Neural tube



- Neural crest

**10** Which is embryonic origin of neurons inside the basal ganglia?

- Neural crest
- Neural tube
- Mezenchyme
- Yolk sack

**11** Which type of capillaries is part of the blood-brain barrier?

- Fenestrated capillaries with continuous basement membrane
- Fenestrated capillaries with non-continuous basement membrane
- Non-fenestrated capillaries
- Sinusoids

**12** How many layers does have the **cortex of the cerebellum**?

- Exactly three
- Two or three
- Three or four
- Two to four

**13** Ependymal cells:

- Form covering layer of the cavities inside CNS
- Apical pole is smooth, without projections
- Produce huge amount of endogenic opioids
- Are tall columnar cells

**14** Is it possible prove the myelin using immunohistochemistry?

- Yes, it is, but we have to pretreat the specimen with the chloroform (trichlormethan)
- Yes, but for specimens harvested from the peripheral nerve system
- Yes, it is, e.g., using the myelin basic protein
- No, it is not possible

**15** What **is not true** for neurons?

- They have plenty of microtubules inside the axon
- They are rich on the rough endoplasmic reticulum
- They have strongly eosinophilic cytoplasm
- They have conspicuous nucleolus

**16** Which type of cells produces **myelin sheet**?

- Either oligodendrocytes of Schwann cells
- Oligodendrocytes only
- Schwann cells only
- Neurons

**17** Staining for myelin:

- Methylen blue
- Toluidin blue
- Alcian blue
- Luxol blue

**18** Function of **satellite cells**:

- They support neurons inside the peripheral ganglia
- They support neurons inside the cerebellar cortex
- They support neurons inside the motoric cortex
- They support neurons inside the basal ganglila

**19** Neurotransmitter of a **motor plate**:

- Acetylcholins
- Norepinephrin

- Epinephrin
- The motor plate is an electric synapsis, it needs no transmitter

**20** What is main principle of the **Nissl's technique**?

- Using of an impregnation
- Using of an acidic dye
- Using of a basic dye
- Using of lectins

**21** What is a **Nissl's substance**?

- Smooth endoplasmic reticulum and rough endoplasmic reticulum
- Complex of microtubules and intermediary filaments
- Rough endoplasmic reticulum and Golgi apparatus
- Rough endoplasmic reticulum and polyribosomes

**22** Which type of connective tissue is the pia mater?

- Highly vascularized loose connective tissue
- Poorly vascularized loose connective tissue
- Highly vascularized reticular tissue
- Poorly vascularized reticular tissue

**23** Which type of ganglia takes usually place in the wall of hollow organs?

- Parasympathetic ganglia
- Somatomotoric ganglia
- Sympathetic ganglia
- There are no ganglia in the wall of hollow organs

**24** What is a **cytoarchitecture** of the brain cortex?

- Arrangement of astrocytes in the basal ganglia
- Arrangement of astrocytes in the brain cortex
- Arrangement of neurons in the basal ganglia
- Arrangement of neurons in the brain cortex

**25** What is a **myeloarchitecture** of the brain cortex?

- Arrangement of myelinated fibers in the brain cortex
- Arrangement of oligodendrocytes in the brain cortex
- Arrangement of astrocytes in the brain cortex
- Arrangement of dendrites in the brain cortex

**26** In which structure are common **pseudounipolar neurons**?

- Posterior horns of the spinal cord
- Anterior horns of the spinal cord
- Autonomic (vegetative) ganglia
- Sensory (spinal) ganglia

**27** How is called the layer of cerebellar cortex containing Purkinje cells?

- Substantia alba cerebelli
- Stratum gangliosum
- Stratum molekulare
- Stratum granulosum

**28** Purkinje cells are:

- Unipolar neurons
- Pseudounipolar neurons
- Bipolar neurons
- Multipolar neurons

**29** Saltatory movement of the action potential:

- The action potential spreads from the neuron to the neuron using electrical synapses

- The action potential jumps from the neuron to the neuron outside synapses
- The action potential occurs in the site of Schmidt-Lanterman cleft only
- The action potential occurs in the site of Ranvier node only

**30** Which structure is responsible for resorption of the cerebrospinal fluid?

- Arachnoid granulations (Pacchionian granulation)
- Lining of left and right brain ventricles
- Lining of 3rd and 4th brain ventricles
- Choroid plexus

**31** Definition of Brodmann's areas is based on:

- Gross (macroscopic) anatomy
- Myeloarchitecture
- Glioarchitecture
- Cytoarchitecture

**32** Allocortex (i.e. archicortex and paleocortex):

- Cortex has usually three layers of neurons
- Cortex has usually six layers of neurons
- Cortex has usually ten layers of neurons
- We can not distinguish layers in the cortex

**33** Which neurons are the most striking in the primary motor cortex of brain (precentral gyrus)?

- Small interneurons
- Pyramidal neurons
- Granular neurons
- The most conspicuous feature of the motor cortex is its inconspicuousness

**34** In which part of the CNS contains **mossy fibers**?

- Substantia nigra, pars reticularis
- Reticular formation
- Rhinencephalon
- Cerebellum

**35** How many layers of neurons do we usually describe in the **neocortex**?

- 3
- 6
- 9
- 12

**36** What statement about **glial cells** is not true?

- One oligodendrocyte can produce myelin sheath for several axons
- Membrane of glial cells can generate the action potential
- Fibrillary astrocytes are in the white matter
- Bergman's glia is in the cerebellum

**37** What statement about **basket cells** is not true?

- Basket cells take place inside molecular layer of cerebellar cortex
- Axons of basket cells make synapses with Purkinje cells
- Basket cells are multipolar neurons
- Basket cells are bipolar neurons

**38** Ganglia of the peripheral nerve system:

- Glia in ganglia is composed of Schwann cells only
- Glia in ganglia contains mainly astrocytes
- Glia in ganglia contains satellite cells
- There is no glia in ganglia

**39** Cranial nerves (head nerves):

- 1<sup>st</sup> head nerve is covered by meninges
- 2<sup>nd</sup> head nerve is covered by meninges
- 3<sup>rd</sup> head nerve is covered by meninges
- 7<sup>th</sup> head nerve is covered by meninges

**40** Spinal cord:

- Neurons in the gray matter are usually pseudounipolar
- There are myelinated fibers in the white matter
- Motoneurons take place in the posterior horns
- There are no interneurons in the gray matter

**41** Unmyelinated fibers:

- In the PNS, they are protected by Schwann cells
- They are in the grey matter of the CNS only
- They are in the PNS only
- They are really naked

**42** Which cells form usually the scar in the CNS?

- Oligodendrocytes
- Müller's cells
- Fibroblasts
- Astrocytes

**43** What is a **perikaryon**?

- Synonymum for a satellite cell
- Synonymum for an astrocyte
- Initial part of the axon
- Body of the neuron

**44** To which part of the cytoskeleton belongs to neurofilaments?

- Intermediate filaments
- Actin filaments
- Microfilaments
- Microtubules

**45** Which of following methods **is not appropriate** for proof of neurons?

- Immunohistochemical staining for neurofilaments
- Silver impregnation
- Nissl's technique
- Luxol blue

**46** Which structures are part of the blood-brain barrier?

- Endothelium of vessels, basal laminas, and extracellular matrix
- Endothelium of vessels, basal laminas, and glial cells
- Endothelium of vessels, basal laminas, and neurons
- Endothelium of vessels only

**47** Purkyně cell:

- Dendrites are branching in the molecular layer and are forming two-dimensional structure
- Dendrites are branching in the molecular layer and are forming three-dimensional structure
- Dendrites are branching in the granular layer and are forming two-dimensional structure
- Dendrites are branching in the granular layer and are forming three-dimensional structure

**48** Which type of neurons are Purkyně cells?

- Unipolar
- Pseudounipolar
- Bipolar
- Multipolar

**49** In which layer can be present **Betz pyramidal cells** (Betz pyramids)?

- Lamina pyramidalis interna
- Lamina pyramidalis externa
- Lamina granularis interna
- Lamina granularis externa

**50** Where takes place the **myenteric plexus** (plexus of Auerbach)?

- Gastrointestinal tract
- Respiratory tract
- Urinary tract
- Spinal cord

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- List of all tests: Histology MCQs
- Portal:Histology