

## Central Nervous System mcqs

### Section 1

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- 1) Which part of the brain has a blood-brain barrier?
  - a) anterior pituitary
  - b) posterior pituitary
  - c) pineal body
  - d) area postrema of the fourth ventricle
  - e) median eminence of the hypothalamus
  
- 2) Which is the largest branch of the internal carotid artery?
  - a) ophthalmic artery
  - b) anterior cerebral artery
  - c) middle cerebral artery
  - d) striate artery
  - e) posterior communicating artery
  
- 3) The brain stem does NOT include the:
  - a) diencephalons
  - b) midbrain
  - c) medulla oblongata
  - d) pons
  - e) substantia nigra
  
- 4) Which cranial nerve lies in the junction between pons and medulla?
  - a) abducent nerve (VI)
  - b) facial nerve (VII)
  - c) vestibulocochlear nerve (VIII)
  - d) glossopharyngeal nerve (IX)
  - e) vagus nerve (X)
  
- 5) Which is the smallest cranial nerve?
  - a) olfactory nerve (I)
  - b) oculomotor nerve (III)
  - c) trochlear nerve (IV)
  - d) abducent nerve (VI)
  - e) accessory nerve (XI)
  
- 6) Which midbrain cells are involved in general light reflexes?
  - a) red nucleus
  - b) superior colliculus
  - c) inferior colliculus
  - d) substantia nigra
  - e) medial geniculate body

- 7) The medulla oblongata:
- a) lies between the midbrain and pons
  - b) has only one cranial nerve emerging from it (the trigeminal nerve)
  - c) has pyramids lateral to the olives
  - d) passes through the foramen magnum
  - e) receives its blood supply from the internal carotid artery
- 8) Which structure does NOT receive supply from the oculomotor nerve?
- a) medial rectus
  - b) ciliary body
  - c) levator palpebrae superioris
  - d) inferior oblique
  - e) lateral rectus
- 9) In central cord syndrome there is:
- a) loss of movement and all sensation below the injured segment
  - b) paralysis and loss of touch sensation on one side and loss of pain and temperature sensation in the upper limbs and spasticity of the lower limbs
  - c) intact touch sensation with loss of all motor and other sensory functions
  - d) no loss of motor or sensory function
- 10) Which structure is encircled by the circle of Willis?
- a) cavernous sinus
  - b) pineal gland
  - c) aqueduct of the midbrain
  - d) pituitary stalk
  - e) medulla

## Central Nervous System

### Section 1 – Answers

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- 1     A
- 2     C
- 3     A
- 4     A
- 5     C
- 6     B
- 7     D
- 8     E
- 9     C
- 10    D

1. Cell bodies for the motor supply of the trigeminal nerve lie

- a. Hypothalamus
- b. Midbrain
- c. Posterior to cerebral aqueduct
- d. Cerebral cortex
- e. Floor of fourth ventricle

2. Cell bodies for the motor supply of the facial nerve lie

- a. Hypothalamus
- b. Midbrain
- c. Floor of the third ventricle
- d. Pons
- e. ?

3. The lumbar plexus

- a. Is immediately medial to the inferior vena cava
- b. Is formed from the posterior rami
- c. Is derived from the last three lumbar nerves
- d. The femoral nerve is formed from L2, 3, 4
- e. The pudendal nerve is a branch of the lumbar plexus

4. regarding the innervation of the bladder

- a. parasympathetic innervation is via the pelvic splanchnic nerves
- b. sympathetic innervation comes from L3 and L4 segments of the cord
- c. sympathetic fibres are excitatory to the bladder
- d. bladder distension sensation travels with the sympathetic nervous system
- e. bladder pain travels only with the superior hypogastric plexus

5. With regards to the spinal cord blood supply

- a. There are two anterior spinal arteries
- b. The anterior spinal artery arises from the vertebral artery
- c. The posterior spinal artery is singular
- d. The posterior spinal artery arises from the posterior superior cerebellar
- e. The anterior spinal artery retains a uniform size throughout its length

6. The diameter of a motor nerve fibre is

- a. 1-2 micrometre
- b. 3-5 micrometre
- c. 5-12 micrometre
- d. 12-20 micrometre
- e. 20-50 micrometre

7. With regard to dermatomal nerve supply:

- a. C7 supplies the index finger
- b. The anterior axial line of the upper limb runs between C6 and C7
- c. T6 is at the level of the nipple
- d. The umbilicus is supplied by either T12 or L1
- e. The heel is supplied by S2

8. with regard to myotomal nerve supply

- a. opponens pollicis is C8
- b. shoulder abduction is C5, 6
- c. ankle plantar flexion is L4, 5
- d. elbow extension is C7, 8
- e. ankle eversion is L4

9. The afferent path of the sneeze reflex is mediated via the

- a. Ophthalmic nerve V1
- b. Maxillary nerve V2
- c. Mandibular nerve V3
- d. Vagus nerve
- e. Glossopharyngeal nerve

10. The motor nuclei of the facial nerve are situated in the

- a. Floor of the third ventricle
- b. Cerebellum
- c. Midbrain
- d. Pons
- e. Medulla oblongata

11. The dermatome supplying the great toe is usually

- a. L3
- b. L4
- c. L5
- d. S1
- e. S2

12. Regarding the cranial nerves

- a. The trigeminal nerve is purely sensory
- b. The abducens nerve traverses the foramen lacerum
- c. The trochlear nerve supplies the superior oblique muscle only
- d. The hypoglossal nerve exits the skull through the foramen magnum
- e. The facial nerve may be involved in infection in the cavernous sinus

13. Which of the following about the facial nerve is incorrect?

- a. Supplies muscles of facial expression
- b. Supplies buccinator
- c. Gives the great petrosal nerve
- d. Contains taste fibres
- e. Contains fibres destined for the ciliary ganglion

14. with regard to the cutaneous innervation of the thorax and abdomen

- a. above the 2nd rib, the skin is supplied by the cervical plexus (C4)
- b. loss of a single spinal segment will produce a sensory deficit
- c. it is supplied segmentally by the anterior primary rami of T1 to L1
- d. T8 supplies skin at the level of the umbilicus
- e. The lower 8 thoracic nerves pass beyond the costal margin to supply the skin of the abdominal wall

15. A 40 year old man suffered a whiplash injury to his neck and now complains of pain along the lateral aspect of his left forearm, and there is weakness of his left biceps. What is the most likely cause of his symptoms?

- a. Prolapsed 4th cervical disc impinging on C4 root
- b. Prolapsed 4th cervical disc impinging on C5 root
- c. Prolapsed 5th cervical disc impinging on C6 root
- d. Prolapsed 6th cervical disc impinging on C6 root
- e. Prolapsed 6th cervical disc impinging on C7 root

16. Wernicke's encephalopathy involves

- a. Expressive dysphasia
- b. Receptive dysphasia
- c. ?
- d. ?

17. Regarding the cutaneous nerve supply to arm and forearm

- a. C3/4 supply pectoral and upper shoulder
- b. Branches of the brachial plexus supply arm and forearm
- c. C4/5/6/T1 supply the majority of the arm
- d. ?
- e. ?

18. referred pain from pancreatitis is at what level?

- a. T7/8
- b. L1/2
- c. T3/4
- d. T12/L1
- e. ?

19. corneal sensation synapses in which ganglion?

- a. Ciliary
- b. Otic
- c. Geniculate
- d. Trigeminal
- e. Pterygopalatine

20. Regarding parasympathetic nervous system

- a. Supply all viscera
- b. Have connector cells in brainstem and sacrum
- c. ?
- d. ?
- e. ?

21. In the spinal cord:

- a. Hemisection of the cord (Brown-Sequard Syndrome) results in paralysis and loss of touch and proprioception on the same side and loss of pain and temperature sensation on opposite side
- b. The cord ends at L3
- c. The lateral corticospinal tract is an important motor tract
- d. The blood supply at each level is in danger because of poor anastomoses
- e. The dorsal/posterior columns contain primarily motor fibres

22. The vagus nerve

- a. Arises from the medulla as a single nerve
- b. Receives nucleus ambiguus fibres from the accessory nerve
- c. Supplies motor fibres to the diaphragm
- d. Supplies sensory fibres to the facial region
- e. Can be tested by looking at tongue movements

23. The sensory root of the facial nerve

- a. Arises from the sulcus between the pons and medulla
- b. Is called the nervus intermedius
- c. Presents as a swelling in the bend called the otic ganglion
- d. Emerges from the base of the skull through the foramen ovale
- e. Supplies the mucous membrane of the posterior third of the tongue

24. Which of the following is not a branch of the trigeminal nerve?

- a. Supraorbital nerve
- b. Great auricular nerve
- c. Mental nerve
- d. Lacrimal nerve
- e. Auriculotemporal nerve

25. The 4th cranial nerve supplies

- a. Lateral rectus
- b. Inferior oblique
- c. Orbicularis oris
- d. Superior oblique
- e. Medial rectus

26. The trigeminal nerve

- a. Has five divisions
- b. Mandibular division is purely sensory
- c. Has its motor nucleus in the upper pons
- d. Exits the skull entirely through the foramen ovale
- e. Does not carry autonomic nerves

27. The cervical sympathetic trunk

- a. Descends from the upper posterior triangle to the first rib
- b. Runs lateral to the vertebral artery
- c. Lies behind the carotid sheath
- d. Lies behind the prevertebral fascia
- e. Ends at the inferior cervical ganglion

28. A dermatome is

- a. ?
- b. separated from a discontinuous dermatome by an axial line
- c. ?
- d. ?
- e. ?

29. which is the CORRECT myotome?

- a. S1 supplies hip abduction
- b. ?
- c. L3, 4 causes knee extension
- d. ?
- e. L5 supplies skin of dorsal 1st web space

30. Myotome of shoulder abduction?

- a. C5
- b. C5, 6
- c. C5, 6, 7
- d. C6, 7, 8
- e. C6,7

31. All of the following are branches of the ophthalmic division of the trigeminal nerve EXCEPT:

- a. Lacrimal nerve
- b. Infraorbital nerve
- c. Supraorbital nerve
- d. Infratrochlear nerve
- e. Supratrochlear nerve

32. Which of the following is a branch of the mandibular nerve

- a. Infraorbital nerve
- b. External nasal nerve
- c. Zygomaticofacial nerve
- d. Auriculotemporal nerve
- e. Zygomaticotemporal nerve

33. which of the following is a branch of the maxillary nerve?

- a. Zygomaticotemporal nerve
- b. ?
- c. ?
- d. ?
- e. ?

34. The midbrain

- a. Is largely in the middle cranial fossa
- b. Is supplied by the anterior inferior cerebellar artery
- c. Lies between pons and upper spinal cord
- d. Contains the oculomotor nuclei
- e. Contains the trigeminal nuclei

35. cerebrospinal fluid communicates with the subarachnoid space via the

- a. 4th ventricle
- b. 3rd ventricle
- c. subarachnoid granulations
- d. choroids plexus
- e. tela choroidia

36. Which of the following pathways is not concerned with posture and movement?

- a. Spinocerebellar
- b. Vestibulospinal
- c. Tractus solitarius
- d. ?
- e. ?

37. The posterior column transmits which of the following

- a. Afferent pain and temperature
- b. Afferent tendon stretch impulses
- c. Motor tracts
- d. ?
- e. ?

38. The infratrochlear nerve supplies the

- a. Upper incisors
- b. Labial gum
- c. Bridge over the nose
- d. Upper lip
- e. Skin of the lower eyelid

39. Which nerve supplies the vertex of the scalp

- a. Greater occipital
- b. Third occipital
- c. Auriculotemporal
- d. Supraorbital
- e. Supratrochlear

40. Corneal sensation synapses in which ganglion

- a. Pterygopalatine
- b. Genuate
- c. Otic
- d. Ciliary
- e. Trigeminal

41. Regarding the speech centres

- a. Broca's area is on the left side in most left-handed people
- b. Broca's area is posterior
- c. Wernicke's area controls motor response
- d. Damage to Broca's area produces motor aphasia
- e. Damage to Wernicke's area produces expressive aphasia

42. Regarding the optic pathways

- a. Combined inferior rectus and superior oblique gives lateral gaze
- b. Abducent paralysis makes eye turn down and out
- c. Superior rectus makes eye turn up and out
- d. Trochlear paralysis, eye cannot look downwards when turned out
- e. Combined superior rectus and inferior oblique causes vertical upward gaze

43. Regarding the blood supply of the cerebral cortex

- a. Middle cerebral is contralateral arm, leg and speech areas
- b. Anterior cerebral is contralateral leg, micturition and defaecation
- c. Middle cerebral is ipsilateral arm, face and vision
- d. Posterior cerebral is ipsilateral vision
- e. Anterior cerebral is contralateral leg, auditory and speech

44. The septum of the nasal cavity is innervated by

- a. Nasopalatine nerve from cranial nerve V2
- b. Posterior ethmoidal nerve from V1
- c. Greater palatine nerve from V2
- d. Lesser palatine nerve from V2
- e. None of the above

45. The fifth cranial nerve supplies

- a. Temporalis
- b. Skin of the tip of the nose via the external nasal branch of the maxillary nerve
- c. Skin of the earlobe via the auriculotemporal nerve
- d. Skin over the occiput
- e. The conjunctiva beneath the lower eyelid via the ophthalmic nerve

46. The cutaneous innervation of the ear

- a. Is the lesser auricular nerve
- b. Involves the dermatome of C3
- c. Includes the zygomaticotemporal branch of the trigeminal nerve
- d. Includes the vagus
- e. Involves the greater occipital nerve

47. The ophthalmic division of the trigeminal nerve

- a. Enters the face via the inferior orbital fissure
- b. Supplies sympathetic fibres to constrictor papillae muscles
- c. Supplies sensation to the forehead and upper eyelid, excluding the orbit
- d. Gives five branches, two of which contain sympathetic as well as sensory fibres
- e. Controls abduction of the eye

48. Where does the superior cerebral vein lie?

- a. Deep in the sulci
- b. Between the dura and the skull
- c. In the arachnoid mater
- d. In the margins of the falx
- e. With the superior cerebral artery

49. Regarding the circle of Willis

- a. Posterior cerebral is a branch of the internal carotid
- b. Anterior cerebral is the largest branch of the internal carotid
- c. Middle cerebral supplies motor but not sensory cortex
- d. Internal carotid gives off ophthalmic artery
- e. Anterior communicating unites middle and anterior cerebral

1. e
2. d
3. d
4. a
5. b
6. d
7. a
8. d
9. b
10. d
11. c
12. c
13. e
14. ?
15. ? (C perhaps?)
16. b
17. b
18. ?
19. ? (d?)
20. b
21. ? (A and C are both correct)
22. b
23. b
24. b
25. c (ahem. d.)

26. c
27. b
28. c
29. c
30. a
31. b
32. d
33. a
34. d
35. a
36. c
37. ?
38. c
39. a
40. e
41. d
42. d
43. b
44. ?
45. a
46. d
47. d
48. c
49. d

**1 Regarding anterior nerve roots**

- A They contain efferent fibres only
- B All roots contain sympathetic fibres
- C Anterior roots join with posterior roots 1cm distal to the intervertebral foramen
- D There are 31 pairs of anterior nerve roots
- E All roots contain efferent motor fibres

**2 The following muscles are supplied by posterior rami of spinal nerves EXCEPT**

- A Erector spinae
- B Levator costae
- C Splenius
- D Scalene posterior
- E Semispinalis capitis

**3 The lateral half of the ankle is supplied by which dermatome**

- A L3
- B L4
- C L5
- D S1
- E S2

**4 The thumb is supplied by which dermatome**

- A C4
- B C5
- C C6
- D C7
- E C8

**5 Which myotome is responsible for shoulder abduction**

- A C4
- B C5
- C C6
- D C7
- E C8

**6 Which myotome is responsible for extension of the hip**

- A L3/4
- B L4/L5
- C L5/S1
- D S1/S2
- E S2/S3

**7 Which myotome is responsible for plantar flexion of the ankle**

- A L4/5
- B L5/S1
- C S1/2
- D S2/3
- E S3/4

**8 The ankle jerk is a test of which segment**

- A L2
- B L3
- C L4
- D L5
- E S1

**9 The anal reflex mainly depends on which segment**

- A S1
- B S2
- C S3
- D S4
- E S5

<b>Q</b>	<b>A</b>
<b>1</b>	<b>B</b>
<b>2</b>	<b>D</b>
<b>3</b>	<b>D</b>
<b>4</b>	<b>C</b>
<b>5</b>	<b>B</b>
<b>6</b>	<b>A</b>
<b>7</b>	<b>C</b>
<b>8</b>	<b>E</b>
<b>9</b>	<b>C</b>