

## Instructions

Choose one most appropriate answer from the alternatives A-D in each question by marking an X in the answer grid sheet. There is no penalty for wrong answers.

- Regarding upper motor and lower motor neuron lesions of the facial nerve:
  - Lesions of the corticonuclear fibres of the right facial nerve will cause paralysis of the ipsilateral lower face and sparing of the ipsilateral upper face
  - Lesions of the lower motor fibres of the left facial nerve will cause paralysis of the ipsilateral lower face and sparing of the ipsilateral upper face **C**
  - Lesions of the corticonuclear fibres of the left facial nerve will cause paralysis of the contralateral lower face and sparing of the contralateral upper face
  - Lesions of the lower motor fibres of the right facial nerve will cause paralysis of the entire contralateral face
- Cells of the olfactory glomeruli:
  - Mitral cells synapses with tufted cells in the anterior olfactory nucleus
  - Tufted cells are projection neurons to olfactory areas
  - Glomeruli are located in the periphery of the olfactory bulb **D**
  - Mitral cells are projection neurons to olfactory areas
- The following consists only components of the olfactory cortex:
  - Fornix, pyriform cortex, hippocampus **B**
  - Pyriform cortex, entorhinal cortex, amygdala
  - Parahippocampus, hippocampus, tectum
  - Arcuate nucleus, orbitofrontal olfactory area, mamillary bodies
- Regarding the fornix:
  - Consists of body and columns only **D**
  - Extends from the hippocampus to the amygdala
  - Commissure of fornix connects the columns
  - Columns are closely related to the mamillary bodies
- In the midbrain, the following are anterior to the cerebral aqueduct except:
  - Tectum **A**
  - Substantia nigra
  - Cerebral peduncle
  - Tegmentum
- The following structures are medial to the internal capsule except:
  - Thalamus **C**
  - Caudate nucleus
  - Putamen
  - Column of fornix

7. Basal ganglia:
- A. Putamen is medial to globus pallidus D
  - B. Lentiform nucleus is immediately lateral to the thalamus
  - C. Nigrostriatal pathway originates in the substantia nigra pars reticulata
  - D. Caudate nucleus is continuous with the amygdala
8. The thalamic nucleus responsible for relay of taste impulses from nucleus of tractus solitarius (NTS) is:
- A. Ventral anterior B
  - B. Ventral posterior medial
  - C. Pulvinar
  - D. Ventral lateral
9. Which nuclei of the hypothalamus release oxytocin and vasopressin?
- A. Suprachiasmatic and lateral
  - B. Supra-optic and paraventricular B
  - C. Anterior hypothalamic and pre-optic
  - D. Ventromedial and tuberomammillary
10. The optic chiasm is closely related to the hypophysis cerebri. A hypophyseal tumour therefore can compress the optic chiasm and typically cause the following visual field defect:
- A. Monocular visual loss B
  - B. Bitemporal hemianopia
  - C. Monocular scotoma
  - D. Homonymous hemianopia
11. Aqueous humour:
- A. Produced by the ciliary muscle into the posterior chamber
  - B. Passes via the pupil into posterior chamber D
  - C. Flows into the canal of Schlemm via the aqueous veins
  - D. Flows to the episcleral veins
12. Choose the correct statement:
- A. Inferior eyelid is at tangent to the limbus A
  - B. Contraction of the ciliary processes accommodates the eye for near vision
  - C. Accommodation of the lens is sympathetic via the oculomotor nerve
  - D. Conjunctiva covers the cornea
13. About the retina:
- A. Macula lutea is located lateral to the optic disc A
  - B. Ora serrata demarcates the outer pigmented layer from the inner neural layer
  - C. Fovea centralis is the only site of maximum visual acuity and only has rods
  - D. In retinal detachment, non-optic part retina separates from the optic retina
14. The following nerve is located outside the walls of the cavernous sinus:
- A. Mandibular A
  - B. Abducent
  - C. Oculomotor
  - D. Maxillary

15. Hypoglossal nerve:
- A. Carries taste sensation from the posterior 2/3<sup>rd</sup> of the tongue **D**
  - B. Supplies all muscles of the tongue
  - C. Emerges between olive and inferior cerebellar peduncle
  - D. Its lesion causes deviation of the protruded tongue to the ipsilateral side as the lesion
16. The following is not part of the cerebellar vermis:
- A. Tonsil **A**
  - B. Culmen
  - C. Lingula
  - D. Nodule
17. Regarding cerebral dura mater:
- A. Outer layer is continuous with the spinal dura mater
  - B. Inner layer provides sheath for cranial nerves **C**
  - C. Outer layer is more vascularised compared to inner layer
  - D. Inner layer is adherent to arachnoid mater by fine fibrous processes
18. The following structure is located between the insula cortex and the external capsule:
- A. Claustrum **A**
  - B. Subthalamus
  - C. Putamen
  - D. Substantia nigra
19. All the following cranial nerves pass via the ponto-medullary junction except:
- A. Glossopharyngeal **A**
  - B. Abducens
  - C. Vestibulocochlear
  - D. Facial
20. Choose the correct statement:
- A. Mamillary bodies are located at the posterior aspect of the brain
  - B. Pineal body is located between the 3<sup>rd</sup> ventricle and the two inferior colliculi **D**
  - C. Cuneate tubercles are medial to the gracile tubercles
  - D. Cerebral peduncles are medial to the optic tracts
21. Which fold of dura mater encloses the superior petrosal sinuses?
- A. Falx cerebelli
  - B. Falx cerebri
  - C. Tentorium cerebelli **C**
  - D. Diaphragma sellae
22. The inferior petrosal sinuses transmit blood from cavernous sinuses to:
- A. Transverse sinuses
  - B. Occipital sinus
  - C. Sigmoid sinuses **C**
  - D. Superior petrosal sinuses
23. About leptomeninges:
- A. Arachnoid mater dips into brain sulci
  - B. Pia mater is in direct contact with nerve cells of CNS **D**
  - C. Pia mater forms trabeculae which connect to the arachnoid mater

D. Arachnoid mater is avascular

24. All the following are intra-cranial haematomas except:

- A. Cephalohaematoma
- B. Subdural haematoma
- C. Subarachnoid haematoma
- D. Epidural haematoma

A

25. All the following structures located in the middle of the cerebrum and can easily be used to check for midline shift of the brain on imaging studies except:

- A. Septum pellucidum
- B. Epiphysis cerebri
- C. 3<sup>rd</sup> ventricle
- D. Mamillary body

D

26. About the blood supply to the cerebellum:

- A. Posterior inferior cerebellar artery (PICA) is a branch of the vertebral artery
- B. Superior cerebellar artery (SCA) is branch of the posterior cerebral artery
- C. Anterior inferior cerebellar artery (AICA) is a branch of the anterior cerebral artery
- D. Lateral medullary syndrome is caused by blockage in AICA

A

27. From without inwards, the following are the histological layers of the cerebellum:

- A. Purkinje, granular and molecular
- B. Granular, molecular and Purkinje
- C. Granular, Purkinje and molecular
- D. Molecular, Purkinje and granular

D

28. True regarding the external anatomical features of the cerebellum:

- A. Flocculonodular lobe is separated from the anterior lobe by horizontal fissure
- B. Cerebellar tonsillar is visible on the superior surface of the cerebellum
- C. Superior cerebellar peduncle forms part of the floor of the 4<sup>th</sup> ventricle
- D. Middle cerebellar peduncle connects cerebellum to pons

D

29. Cerebellar nuclei:

- A. Nucleus globosus is phylogenetically most recent
- B. Globosus, dentatus, emboliform and fastigii are all embedded in white matter
- C. From lateral to medial are fastigii, globose, emboliform and dentatus
- D. Both emboliform and fastigii have paleocerebellar in function

B

30. Regarding brain herniation:

- A. Uncal herniation most likely will compress the trochlear nerve
- B. Cerebellar tonsillar herniation results in compression of the pons
- C. In cingulate (subfalcine) herniation, brain herniates beneath falx cerebelli
- D. Cerebellar tonsillar herniation may result in compression of cardiorespiratory centres

D

31. About the developmental functions of the cerebellum:

- A. Posture and equilibration are functions of the archicerebellum
- B. Posture anti-gravity and locomotion is a function the neocerebellum
- C. Skilled and learned movements is a function of the paleocerebellum
- D. Posture anti-gravity and locomotion are functions of the neocerebellum

A

32. The interpeduncular fossa contains the following structures except:  
 A. Oculomotor nerve  
 B. Trochlear nerve  
 C. Circle of Willis  
 D. Optic chiasm B
33. Termination of the lumbar cistern is at what vertebral level?  
 A. L2 C  
 B. L5  
 C. S2  
 D. S4
34. The following cistern is located immediately anterior to the 3<sup>rd</sup> ventricle:  
 A. Chiasmatic cistern  
 B. Cisterna ambiens C  
 C. Cistern of lamina terminalis  
 D. Cisterna magna
35. Regarding the hypophysis cerebri: NO ANSWER  
 A. Median eminence is not part of its posterior division  
 B. Lies in the sella turcica below the sphenoid sinus  
 C. Damage to pituitary stalk can result in reduced amount of urine (oliguria)  
 D. Neurons from hypothalamus extend into its anterior lobe
36. About blood supply to the spinal cord:  
 A. Anterior and posterior spinal arteries do not extend the entire length of the spinal cord B  
 B. There are two anterior spinal arteries and one posterior spinal artery  
 C. The artery of Adamkiewicz is the largest posterior lumbar radicular artery  
 D. Blood below the cervical segments of the spinal cord is supplied by radicular arteries
37. The following areas of the brain are correctly matched according to their main blood supply: C  
 A. Calcarine sulcus ..... middle cerebral artery  
 B. Wernicke's area ..... anterior cerebral artery  
 C. Broca's area ..... middle cerebral artery  
 D. Corpus striatum ..... posterior cerebral artery
38. Endiger-Westphal nucleus: C  
 A. Receives input from the pretectal area  
 B. Is anterior to the oculomotor nucleus  
 C. Is located in the tegmentum of the midbrain  
 D. Carries postganglionic fibres to sphincter pupillae muscle of iris and ciliary muscle
39. All the following structures are located at the level of the superior colliculus of the midbrain except: C  
 A. Red nucleus  
 B. Endiger-Westphal nucleus  
 C. Medial geniculate bodies  
 D. Pretectal area

40. Regarding examination of cranial nerves:
- A. Cranial nerves III, IV and ophthalmic are examined for eye movements **B**
  - B. Vagus nerve is tested by asking the patient to say 'aah' and assessing the uvula position which deviates to the contralateral side if there is paralysis of one nerve
  - C. Cranial accessory nerve is tested by asking the patient to move head sideways
  - D. Paralysis of the abducent nerve will cause medial strabismus
41. Examination of the vestibulocochlear nerve:
- A. Weber test is done by placing the base of a vibrating tuning fork on the mastoid process until subject no longer hears it, then placed next to the ipsilateral ear
  - B. In sensorineural deafness, the subject will hear the sound louder in the normal ear during Weber test **B**
  - C. In conductive deafness, the subject will hear the vibrations in air after bone conduction is over during Rinne's test
  - D. Bone conduction is twice greater than air conduction
42. The following nuclei are correctly matched to their cranial nerves except:
- A. Edinger-Westphal ..... Oculomotor nerve
  - B. Inferior salivatory ..... Glossopharyngeal **C**
  - C. Lacrimary ..... Oculomotor
  - D. Nucleus ambiguus ..... Accessory
43. About the ophthalmic artery:
- A. Is the only source of blood to all structures in the orbit
  - B. Contributes to Kiesselbach's plexus **C**
  - C. Central artery of the retina is its second branch
  - D. Is a branch of the cavernous part of internal carotid artery
44. Cranial nerve with no connection with the nucleus of tractus solitarius is:
- A. Vagus
  - B. Facial **D**
  - C. Glossopharyngeal
  - D. Oculomotor
45. Almost 80-90% of epistaxis commonly occurs in Little's area, a region where four arteries anastomose to form Kiesselbach's plexus. The following are the arteries except:
- A. Sphenopalatine
  - B. Anterior and posterior ethmoidal **C**
  - C. Lesser palatine
  - D. Facial artery via superior labial branch
46. About nerve supply to the tongue:
- A. Posterior 2/3<sup>rd</sup> of the tongue is supplied by the glossopharyngeal nerve
  - B. Mandibular nerve is motor to the tongue muscles
  - C. Proximal to the sulcus terminalis, taste sensation is via the lingual nerve
  - D. Sensation from the vallecula is via the vagus nerve

NO  
ANSWERS

47. About the eyelids: B
- A. Jaundice is checked on the palpebral conjunctiva
  - B. Blockage and inflammation of the glands of Moll or Zeis is called a chalazion
  - C. Drooping of the lower eyelid is called ptosis
  - D. Tarsal glands are located behind the orbital septum
48. Baby of Sarah Mwanza is 36 hrs old. Without history of trauma after birth, she suddenly develops a swelling on the right parietal side of her head. Most likely has: B
- A. Subdural haematoma
  - B. Subperiosteal haematoma
  - C. Subarachnoid haematoma
  - D. Epidural haematoma
49. Samuel Imbwae, a 10 year old boy, is brought to the emergency room (ER) in an unconscious state with a 1 hour history of been involved in a road traffic accident (RTA). Imaging studies show fracture of the left pterion with a left intra-cranial haematoma. Which artery is most likely torn? C
- A. Recurrent meningeal artery
  - B. Accessory meningeal artery
  - C. Middle meningeal artery
  - D. Superficial temporal artery
50. With reference to question 49 above, Samuel has most likely sustained: C
- A. A subarachnoid haematoma
  - B. A subdural haematoma
  - C. An epidural haematoma
  - D. An intra-cerebral haematoma
51. A 54-year-old woman who has initial insomnia was prescribed a hypnotic drug that increases the activity of a major neurotransmitter system in the brain. Which of the following neurotransmitter systems was most likely involved in the therapeutic action of that drug? C
- A. Cholinergic
  - B. Glutamatergic
  - C. GABAergic
  - D. Dopaminergic
52. Assume that instead of inducing anaesthesia with propofol, the nurse anaesthetist used a parenteral barbiturate (e.g., thiopental) with a swift onset of action and short duration. This barbiturate induction agent is associated with a fairly high incidence of which adverse effect is? B
- A. Hypertensive crisis
  - B. Laryngospasm
  - C. Malignant hyperthermia
  - D. Seizures, typically monoclinic

53. A 34-year-old man with mild anxiety and depression symptoms has heard about buspirone on TV and asks whether it might be suitable for him. Which phrase correctly describes an important property of buspirone? **D**
- Has a significant potential for abuse
  - Is likely to potentiate the CNS-depressant effects of alcohol, benzodiazepines.
  - Requires almost daily dosage titrations to optimise the response
  - Seldom causes drowsiness
54. A 17-year-old boy developed brief episodes of protruding tongue, grimacing, and spasmodic torticollis on day 2 after admission in the psychiatric emergency department. The patient was brought there by the police because of assaultive behaviour toward his mother. He struck her after a heavy drinking bout because he thought she was about to kill him with a knife. Drug treatment was started to control his assaultive behaviour, and he received three intramuscular injections over 24 hours. Which of the following drugs most likely caused the adverse effects reported by the patient? **A**
- Haloperidol
  - Lorazepam
  - Buspirone
  - Clozapine
55. A 32-year-old woman complained to her physician that two breakthrough seizures occurred last week. One month earlier the woman was diagnosed with simple partial seizure and started treatment with an antiepileptic drug. The physician increased the dose of the drug, thinking that the decreased effect was most likely because the drug is a potent enzyme inducer and can induce its own metabolism. Which of the following drugs did the patient most likely take? **B**
- Valproic acid
  - Carbamazepine
  - Lamotrigine
  - Ethosuximide
56. A 30-year-old man complained of dry mouth, constipation, and blurred vision while reading the newspaper. The man, recently diagnosed with a schizoid disorder, had started treatment with clozapine 2 weeks previously. Blockade of which of the following receptors most likely mediated the adverse effects reported by the patient? **D**
- 5-HT<sub>2</sub> serotonergic
  - H<sub>1</sub> histaminergic
  - N<sub>m</sub> cholinergic
  - M<sub>3</sub> cholinergic
57. About one year ago you diagnosed schizophrenia in a 23-year-old otherwise healthy man. As a result of intensive psychotherapy and careful titration of chlorpromazine dosages, he is well enough to return to work. Several months later, the patient develops akathisia (inner restlessness, jitteriness, etc.). However, typical manifestations of schizophrenia seem to be well controlled. Which approach is most likely to alleviate the motor and subjective parkinsonian responses, and pose the lowest risk of causing schizophrenia signs and symptoms to reappear? **B**
- Add a centrally acting cholinesterase inhibitor (e.g., donepezil)
  - Add benztropine.
  - Add levodopa or levodopa plus carbidopa.

D. Switch from chlorpromazine to haloperidol.

58. Clozapine, as an example of the "atypical antipsychotics," seldom is used as first-line (initial) therapy of schizophrenia. Compared with the older antipsychotics, it is associated with a much higher risk of a severe adverse response. What is that higher risk?
- A. Agranulocytosis
  - B. Extrapyrarnidal side effects (parkinsonian)
  - C. Hypotension, severe
  - D. Ventilatory depression or arrest
59. One approach to managing hyperprolactinemia is to administer a drug that has relative selectivity, as an agonist, for central dopamine D2 receptors. What drug works in that manner?
- A. Bromocriptine
  - B. Chlorpromazine
  - C. Haloperidol
  - D. Promethazine
60. A 45-year-old man recently diagnosed with partial seizures came to his neurologist's office for a routine visit. The man had been receiving an antiseizure drug for the past 3 months. An electroencephalogram showed left temporal sharp waves, and the neurologist decided to add lamotrigine to the patient's regimen. A relatively low dose of lamotrigine was prescribed because the drug the patient was already taking can inhibit the metabolism of lamotrigine. Which of the following was most likely that drug?
- A. Phenytoin
  - B. Phenobarbital
  - C. Valproic acid
  - D. Gabapentin
61. A patient develops a severe and rapidly worsening adverse response to a drug. The physician orders prompt administration of antipyretics, IV hydration, and bromocriptine or dantrolene to manage symptoms and to prevent a fatal outcome. Which drug or drug group most likely caused these adverse responses?
- A. Benzodiazepines, especially those used as hypnotics
  - B. Chlorpromazine
  - C. Levodopa
  - D. Phenytoin
62. An 8-year-old girl is brought to the ED by her mother, who has observed that her daughter experiences frequent impairments of consciousness associated with episodes of staring into space lasting approximately 30 seconds. Further neurologic evaluation indicates signs and symptoms consistent with absence seizures. Which of the following drugs is generally considered the preferred starting agent for this type of epilepsy?
- A. Alprazolam
  - B. Diazepam
  - C. Ethosuximide
  - D. Phenytoin

63. A patient in the neurology unit develops status epilepticus, and at the time there is no good information about the aetiology. What drug should be given first for the fastest suppression of the seizures?
- A. Lorazepam
  - B. Phenobarbital
  - C. Phenytoin
  - D. Valproic acid
- A
64. A young boy who has been treated for epilepsy for a year is referred to a periodontist for evaluation and treatment of massive overgrowth of his gingival tissues. Some teeth are almost completely covered with hyperplastic tissue. Which drug is the most likely cause of the oral pathology?
- A. Carbamazepine
  - B. Phenobarbital
  - C. Phenytoin
  - D. Valproic acid
- C
65. A patient with Parkinson disease starts therapy with a drug that acts in the CNS as an agonist for dopamine receptors. It has no direct effects on dopamine synthesis, neuronal reuptake, or metabolic inactivation. Which drug fits this description the best?
- A. Amantadine
  - B. Apomorphine
  - C. Bromocriptine
  - D. Selegiline
- C
66. Our chosen pharmacologic approach to managing a patient with mild and recently diagnosed parkinsonism will be to enhance the activity of endogenous brain dopamine; by inhibiting its metabolic inactivation. What drug works primarily by that mechanism?
- A. Benztropine
  - B. Selegiline
  - C. Bromocriptine
  - D. Chlorpromazine
- B
67. Nearly all the drugs used as primary therapy, or as adjuncts, for the treatment of Parkinson disease or drug-induced parkinsonism exert their desired effects directly in the brain's striatum. Which one exerts its main effects in the gut, not in the brain?
- A. Amantadine
  - B. Bromocriptine
  - C. Carbidopa
  - D. Selegiline
- C
68. A 42-year-old woman develops akathisia, parkinsonian-like dyskinesias, galactorrhea, and amenorrhea, during drug therapy. What drug-receptor-based mechanism, occurring in the central nervous system, most likely caused these responses?
- A. Blockade of dopamine receptors
  - B. Blockade of muscarinic receptors
  - C. Supersensitivity of dopamine receptors
  - D. Stimulation of nicotinic receptors
- A

69. A 66-year-old man who had been a heavy smoker for 30 years was undergoing bronchoscopy for suspected bronchogenic carcinoma. Before starting the intervention, the anesthesiologist administered a drug to prevent situational anxiety and to provide anterograde amnesia of the procedure. Which of the following drugs would be appropriate for this patient?
- A. Buspirone
  - B. Chlorpromazine
  - C. Oxazepam
  - D. Haloperidol
- C (Benzodiazepams)
70. A young woman is taken to the emergency department by some friends. It seems someone slipped something into her alcoholic beverage. She is now extraordinarily drowsy and has little recall of what happened between the time she sipped her drink and now. You suspect her drink was spiked with flunitrazepam. A positive response (i.e., symptom improvement) to administering what drug below would confirm your suspicion?
- A. Diazepam
  - B. Flumazenil
  - C. Naltrexone
  - D. Triazolam
- B
71. Indicate the intravenous anesthetic, which causes minimal cardiovascular and respiratory depressant effects:
- A. Propofol
  - B. Thiopental
  - C. Etomidate
  - D. Midazolam
- C
72. Which of the following inhaled anesthetics can produce hepatic necrosis?
- A. Soveflurane
  - B. Desflurane
  - C. Halothane
  - D. Nitrous oxide
- C
73. Which of the following inhalants lacks sufficient potency to produce surgical anesthesia by itself and therefore is commonly used with another inhaled or intravenous anesthetic?
- A. Halothane
  - B. Sevoflurane
  - C. Nitrous oxide
  - D. Desflurane
- C
74. Which of the below mentioned opioid analgesic agent might produce anxiety, dysphoria and hallucinations
- A. Fentanyl
  - B. Pentazocine
  - C. Methadone
  - D. Morphine
- B
75. Mu opioid receptors are linked with
- A. Euphoria, analgesia, depression in respiration and physical dependence
  - B. Mydriasis, spinal analgesia, sedation and physical dependence
  - C. Hallucinations, dysphoria, vasomotor and respiratory stimulation

D. Euphoria, analgesia, physical dependence and respiratory stimulation

76. A 20-year old patient presented with early pregnancy was admitted for Medical Termination of Pregnancy in day care facility. What will be the anaesthetic induction agent of choice?

- A. Thiopentone
- B. Ketamine
- C. Propofol
- D. Diazepam

77. A young boy undergoes eye surgery under day care anaesthesia with succinyl choline and propofol and after 8 hours he starts walking and develops muscle pain. What is the likely cause?

- A. Early mobilisation
- B. Due to the effects of eye surgery
- C. Succinyl choline
- D. Propofol

78. All of the following factors influence the rate of induction of anaesthesia with an inhaled anaesthetic EXCEPT:

- A. Aqueous solubility of the anaesthetic
- B. Patient history of malignant hyperthermia
- C. Anaesthetic concentration in inspired air
- D. Pulmonary blood flow rate

79. Which of these opioid analgesics would you recommend for relieving the acute, severe pain of renal colic?

- A. Morphine
- B. Methadone
- C. Pethidine
- D. Naltrexone

80. Concerning local anaesthetics

- A. Amide local anaesthetics are more likely to cause allergic reactions compared to ester anaesthetics
- B. Amide local anaesthetics are metabolized in the liver
- C. Ester type local anaesthetics include lignocaine
- D. Bupivacaine is a short acting local anaesthetic

81. Which of the following anaesthetics would be most suitable in a patient with poor cardiovascular function

- A. Halothane
- B. Propofol
- C. Ketamine
- D. Thiopentone

B  
Please Can LPM  
BET

C

82. Not long ago, several patients seeking "relief" from facial wrinkles nearly died because they received injections of botulinum toxin that was improperly obtained and inadequately diluted. Which is a correct characteristic, finding, or mechanism associated with this toxin?
- A. Complete failure of all cholinergic neurotransmission
  - B. Favourable response to administration of pralidoxime
  - C. Massive overstimulation of all structures having muscarinic cholinergic receptors
  - D. Selective paralysis of skeletal muscle
83. A 32-year-old woman was brought to the emergency department because of a generalised tonic-clonic seizure. Her husband stated that his wife had had epilepsy since childhood, but the seizures were only partially controlled by medication. Which of the following pairs of neurotransmitters are thought to be most involved in seizure disorders?
- A. GABA and glutamate
  - B. GABA and acetylcholine
  - C. Serotonin and glutamate
  - D. Serotonin and acetylcholine
84. We perform a meta-analysis on the ability of various antipsychotic drugs to cause constipation, urinary retention, blurred vision, and dry mouth—all of which reflect significant blockade of muscarinic receptors in the peripheral nervous systems. Which of the following drugs most likely caused these unwanted effects?
- A. Chlorpromazine
  - B. Clozapine
  - C. Haloperidol
  - D. Olanzapine
85. A 30-year-old woman with partial seizures is treated with vigabatrin. What is the principal mechanism of action of this anticonvulsant?
- A. Sodium channel blockade
  - B. Increase in frequency of chloride channel opening
  - C. Increase in GABA
  - D. Increased potassium channel permeability
86. Drug X belongs to an old class of drugs that, when given by its usual route, orally, can interact with foods such as cheese and processed meats, leading to an interaction that can elevate blood pressure to severe or fatal levels. In its lowest dose, no dietary restriction(s) are required. Based on this information, how is drug X most likely classified and what is its most likely clinical use?
- A. Amphetamine-like agent for ADD/ADHD
  - B. Barbiturates used for daytime anxiety
  - C. Benzodiazepine for anxiety and sleep
  - D. MAO inhibitor for depression

87. Trihexyphenidyl is prescribed as an adjunct to other drugs being used to manage a patient with Parkinson disease. What is the most likely purpose or action of this drug as part of the overall drug treatment plan? **A**
- A. To help correct further the dopamine-ACh imbalance that accounts for parkinsonian signs and symptoms
  - B. To manage cutaneous allergic responses that are so common with typical antiparkinson drugs
  - C. To prevent the development of manic/hypomanic responses to other antiparkinson drugs
  - D. To reverse tardive dyskinesias if an antipsychotic drug-induced the parkinsonism
88. Midazolam was the first drug given to a patient, right before she was transported into the OR. In addition to causing sedation, anxiety relief, and generally "smoothing" the induction of anaesthesia, what are the most likely affects you would expect to occur as a result of pre-medicating with midazolam? **D**
- A. Potentiating the analgesic effects of the morphine
  - B. Preventing seizures likely to be caused by the propofol
  - C. Prophylaxis of cardiac arrhythmias
  - D. Providing amnestic effects
89. A 51-year-old man suffering from episodic leg cramps started treatment with a drug that activates GABAB receptors both in the brain and in the spinal cord. This activation most likely opened which of the following ion channels? **A**
- A.  $K^+$
  - B.  $Cl^-$
  - C.  $Ca^{2+}$
  - D.  $Na^+$
90. A 47-year-old woman complained to her physician of blurred and double vision. She had been suffering from a central nervous system disorder and had been receiving drug treatment for 6 months. Physical examination showed mild hirsutism, broadening of her lips and nose, and thickening and bleeding of her gums. Which of the following drugs most likely caused these adverse effects? **D**
- A. Diazepam
  - B. Valproic acid
  - C. Gabapentin
  - D. Phenytoin
91. The main function of raphe nuclei is to release what into the brain? **B**
- a) Dopamine
  - b) Serotonin
  - c) Epinephrine
  - d) Norepinephrine
92. What somatovisceral projection generally represents the face? **B**
- a) Spinocervicothalamic pathway
  - b) Trigeminothalamic tract
  - c) Postsynaptic dorsal column pathway
  - d) Dorsal spinocerebellar tract

93. Match the type of neuron (order) with the location or description: D
- Located in sensory nucleus of thalamus -First-order
  - Located in sensory receiving areas of cerebral cortex -second-order
  - Located in spinal cord or brainstem- third order
  - Cell bodies of primary afferent neurons are generally located- Dorsal root or cranial nerve ganglia
94. Which of the following events would most stimulate A fiber nociceptors? D
- Itching induced by histamine
  - Diving into a cold pool
  - Stepping into a hot tub
  - Being stuck with an IV needle
- 95) Which of the following would respond most when a joint is moved into extreme flexion or extension? B
- Merkel nerve endings
  - Ruffini corpuscles
  - Meissner corpuscles
  - Pacinian corpuscles
96. Small myelinated and unmyelinated nociceptive and thermoceptive primary afferent fibers of the trigeminal nerve terminate in what nucleus? B
- Principal sensory nucleus
  - Spinal nucleus
  - Mesencephalic nucleus
  - Clarke's nucleus
- 97) Primary afferent fibers from stretch receptors have their cell bodies in what trigeminal nerve nucleus? C
- Principal sensory nucleus
  - Spinal nucleus
  - Mesencephalic nucleus
  - ventroposteriorlateral thalamic nuclei
- 98) Which aspect of stimulus can be encoded by the intervals between discharges of sensory neurons? D
- Stimulus location
  - Stimulus intensity
  - Stimulus frequency
  - Stimulus duration
- 99) Which of the following is NOT involved in proprioception? D
- Golgi tendon organs
  - Muscle spindle fiber
  - Paciman corpuscles in limb joints
  - Hair follicles on the skin of moving joints

100) Which of the following sensations is part of the spinothalamic tract and not the dorsal column-medial lemniscus pathway?

- a) Flutter-vibration
- b) Touch & pressure
- c) Temperature & pain
- d) Proprioception

*ALL THE BEST*

C