

WESTERN UNIVERSITY OF HEALTH SCIENCES  
COLLEGE OF OSTEOPATHIC MEDICINE OF THE PACIFIC

NEURO-SENSORY FINAL EXAM  
APRIL 22, 1998

#2

Choose the **ONE BEST** answer and darken the appropriate box on the Scantron form. There are **46 questions** on this exam.

Dr. Ries

1. The most frequently encountered tumor in adults is
  - a. glioma.
  - b. medulloblastoma.
  - c. primitive ectodermal tumors.
  - d. ganglioma.
  - e. all of the above.
2. An 85-year-old female presents with a growth in the left frontal lobe. The lesion is biopsied with a diagnosis of Grade I tumor type. This is associated with a cytologically very aggressive tumor.
  - a. True
  - b. False

Dr. Grunden

3. All of the following statements about opioid analgesics are correct EXCEPT:
  - a. Opioid analgesics can affect both sensory and affective (emotional) components of pain. T
  - b. Opioid analgesics stimulate the chemoreceptor trigger zone. T
  - c. Opioid analgesics relax most smooth muscle in the body including the bladder. ? + tone ?
  - d. Opioid analgesics increase the tone of the GI tract but decrease propulsive contractions. T
  - e. Opioid analgesics can result in orthostatic hypotension. T
4. A comatose patient suspected of having overdosed on heroin or morphine is brought into the ER. Naloxone (Narcan) is given intravenously. Which of the following changes would LEAST LIKELY occur following administration of naloxone?
  - a. Increased respiratory rate and depth. T
  - b. pupillary dilation. T
  - c. anxiety, tremor and restlessness. T
  - d. sweating with elevated blood pressure and heart rate.
  - e. life-threatening convulsions.

5. Which of the following analgesics has a high maximal efficacy and high addiction liability?

- a. buprenorphine (Buprenex). —
- b. codeine.
- c. meperidine (Demerol).
- d. nalbuphine (Nubain).
- e. pentazocine (Talwin NX). - given w/ Naloxone

6. A heroin addict who strongly wishes to "stay clean" might benefit from daily oral doses of an opioid antagonist. Caution must be observed initially, however, since this drug can precipitate opioid withdrawal symptoms. The drug is:

- a. butorphanol (Stadol)
  - b. methadone (Dolophine)
  - c. naloxone (Narcan)
  - d. naltrexone (Trexan)
  - e. tramadol (Ultram).
- DD - Naloxone  
Opioid

7. All of the following statements about aspirin and acetaminophen (Tylenol) are correct EXCEPT:

- a. Unlike aspirin, acetaminophen is a highly selective inhibitor of cyclooxygenase-2 (COX-2) and therefore lacks GI side-effects.
- b. Acetaminophen produces analgesia comparable to that of aspirin at comparable doses. T
- c. Acetaminophen has antipyretic actions comparable to those of aspirin at comparable doses. T
- d. Unlike aspirin, acetaminophen lacks anti-inflammatory activity at clinically useful doses. T
- e. Unlike aspirin, acetaminophen does not inhibit platelet aggregation. T

8. All of the following may typically occur with salicylate poisoning EXCEPT:

- a. Headache, tinnitus, dizziness, nausea and vomiting. T
- b. Serious hepatotoxicity with jaundice, hepatic failure, coma and death. Acetaminophen?
- c. Hyperthermia, hyperpnea and respiratory alkalosis. T
- d. Metabolic and respiratory acidosis. T
- e. Toxic psychosis, convulsions, coma, respiratory failure and cardiovascular collapse.

9. NSAIDs include indomethacin (Indocin), ibuprofen (Motrin), naproxen (Anaprox), piroxicam (Feldene), etc.. All NSAIDs share all of the following characteristics EXCEPT:

- a. Inhibition of prostaglandin synthesis. T
- b. Analgesic, anti-inflammatory and antipyretic activity. T
- c. Can inhibit platelet aggregation. T
- d. Orally effective and short-acting (half-lives of 1 to 3 hours). -
- e. Similar spectrum of possible adverse reactions, including gastric irritation and renal toxicity.

10. When it is desirable to provide short-term management of moderate-to-severe pain (e.g. postoperative pain) without respiratory depression or addiction liability, which of the following drugs should be used:

- a. aspirin + codeine (e.g. Empirin with Codeine, No. 4).
- b. ketorolac (Toradol).
- c. meperidine (Demerol).
- d. propoxyphene (Darvon).
- e. tramadol (Ultram).

Dr. Klick

11. Regarding human diseases of sphingolipid metabolism:

- a. In Tay-Sachs disease, a specific ganglioside accumulates in the brain and spleen owing to the lack of the lysosomal enzyme hexosaminidase A.  $T$
- b. In Gaucher's disease, liver and spleen enlargement is due to accumulation of glucocerebroside, Glc- $\beta$ -1,1-ceramide, in the lysosomes of the cells.  $T$
- c. In Nieman-Pick disease, sphingomyelin accumulates in the brain, spleen and liver.
- d. All of the above are correct.
- e. None of the above are correct.

12. The antigenetic determinants of the ABO blood group system are the result of genetic variation as it relates to differential gene activity for specific

- a.  $\beta$ -D-glucosidases.
- b. glycosyltransferases.
- c. glycocerebrosidases.
- d. sulfidases.
- e. all of the above.

G.M., gal or glu

Dr. Martin

13. Which of the following gene products is NOT associated with Alzheimer's disease?

- a. apolipoprotein E
- b. presenilin-1
- c. superoxide dismutase
- d. beta amyloid
- e. presenilin-2

14. A mutation in a gene encoding a helicase is thought to result in

- a. presenile dementia of the Alzheimer's type
- b. premature aging (Werner's syndrome)
- c. the familial form of ALS
- d. Huntington's disease
- e. negative symptom schizophrenia

15. According to the readings in your lecture outline and supplement, a patient having large ears, a long face, mental retardation, 500 repetitions of the trinucleotide CGG in a gene encoding an RNA binding protein would be classified as having

- a. Huntington's disease
- b. Werner's Syndrome
- c. Creutzfeld-Jacob's Disease
- d. Narcolepsy
- e. Fragile-X Syndrome

16. Episodes of which of the following sleep-related disturbances does NOT occur during stage IV slow wave sleep?

- ~~a.~~ nocturnal enuresis
- ~~b.~~ somnambulism
- ~~c.~~ narcolepsy
- d. night terrors
- e. sleep apnea

17. Which of the following is NOT evidence that the SCN is the master oscillator in the brain?

- a. sleep is abolished after lesion of the SCN
- ~~b.~~ circadian rhythmicity in activity is gone after large lesions of the SCN
- ~~c.~~ ex vivo cultures of SCN tissue continues to maintain a circadian rhythm in vasopressin release
- d. electrical stimulation of the SCN causes phase shifting in various circadian rhythms

18. What cellular mechanisms produce the EEG?

- a. the EEG is produced by local current changes in the cerebellum
- b. the EEG is produced by local current flowing in and out of the dendrites of cortical neurons
- c. the EEG is produced by primary evoked potentials at sites corresponding to the end of sensory pathways in the cortex
- d. all of the above
- e. none of the above

Dr. Atkinson

19. Of the following, which is specific, or diagnostic, of Alzheimer's disease?

- a. presence of neuritic plaques  $\checkmark$
- b. presence of neurofibrillary tangles  $\checkmark$
- c. cerebral atrophy  $\checkmark$
- d. none of the above

} All R features found in other dis/or natural phenom.

20. All of the following are associated with Parkinson's disease EXCEPT

- a. gliosis within the midbrain.
- b. Lewy bodies.
- c. Alzheimer's disease.
- d. beta-amyloid.

21. What is the primary predisposing factor for intraventricular hemorrhage due to a germinal matrix bleed?

- a. infection
- b. hypoxia
- c. hypotension
- d. birth injury

~~22.~~ What cranial structure is most vulnerable during vaginal birth?

- a. cerebrum
- b. cerebellum
- c. skull (calvarium)
- d. dura

C+D

23. Which of the following inborn errors of metabolism is primarily associated with degeneration of the brain's white matter?

- a. Hurler's disease
- b. Pompe disease
- c. Niemann-Pick disease
- d. metachromic leukodystrophy

24. Which of the following inborn errors of metabolism is due to a defect associated with the metabolism of glycogen?

- a. Hurler's disease
- b. Pompe disease
- c. Niemann-Pick disease
- d. metachromic leukodystrophy

Dr. Toffol

25. A 28-year-old male was admitted to the hospital with an acute subarachnoid hemorrhage due to a ruptured saccular aneurysm. Three days later after surgery, he develops a right hemiparesis due to

- a. rebleeding.
- b. vasospasm.
- c. hydrocephalus.
- d. meningitis.
- e. conversion reaction.

26. Choose the INCORRECT association concerning antiplatelet therapy for transient ischemic attacks (TIA).

- a. aspirin: effective in men only based on North American Research studies.
- b. ticlopidine: effect in men and women and helps prevent a second stroke.
- c. clopidogrel bisulfate: indicated for the reduction of stroke, myocardial infarction, and peripheral vascular disease.
- d. Persantine: effective in reducing stroke, adjunctively, when used with aspirin.
- e. Anturane: proved ineffective in stroke prevention.

27. You have screened an acute stroke victim (brain attack) for intravenous tissue plasminogen activate (rt-PA). After an emergent CT of the brain shows hemorrhage, you would

*rt-PA acute stroke*

- a. begin IV administration of (rt-PA).
- b. do not begin IV rt-PA.
- c. board patient for neurosurgery.
- d. provide supportive care and secure airway.
- e. both b and d.

28. The most common cause(s) of hypertensive intracerebral hemorrhages is/are

- a. rupture Charcot-Bouchard aneurysms (microaneurysms).
- b. lipohyalinosis.
- c. fibrinoid linear necrosis.
- d. saccular aneurysm.
- e. both a and c.

29. The most common region of the brain for a hypertensive intracerebral hemorrhage is

- a. basal ganglia (putamen).
- b. diencephalon (thalamus).
- c. brain stem (pons).
- d. cerebellum (dentate nucleus).
- e. cerebral white matter.

*111 of ANSWER CORRECT*

30. Carotid endarterectomy is NOT recommended for

- a. symptomatic patients with high grade stenosis or subtotal occlusion (70-99%).
- b. asymptomatic patients with high grade stenosis or subtotal occlusion (70-99%).
- c. symptomatic patients with stenosis less than 70%.
- d. symptomatic patients with middle cerebral artery stenosis.
- e. symptomatic patients with high grade stenosis and an intraluminal filling defect (suggestive of intraluminal clot).

*rD*

Dr. Parsa

31. Which of the following statements about multiple sclerosis (MS) is TRUE?

- a. the affected individuals are usually less than 10 years old 15-50
- b. there is patchy demyelinating plaques in the white matter T
- c. oligoclonal bands is found only in MS
- d. myelin basic protein is found only in MS
- e. symptoms always present abruptly with rapid progression

32. A malignant brain tumor has a tendency to:

- a. metastasize to distant organs
- b. be surgically cured
- c. infiltrate along fiber tracts and seed CSF
- d. remain localized without recurrences
- e. show no edema

33. Which of the following is most likely to occur in the cerebellum of children?

- A + B
- a. medulloblastoma
  - b. astrocytomas
  - c. meningiomas
  - d. ependymoma
  - e. lymphoma

34. High cellularity, pleomorphism, necrosis, proliferation of blood vessels with endothelium, and many mitoses characterize:

- a. glioblastoma multiforme
- b. pilocytic astrocytoma
- c. oligodendroglioma
- d. meningioma
- e. ependymoma

35. Which of the following occurs in the third ventricle causing noncommunicating hydrocephalus, headaches, sudden transient paralysis, and personality changes?

- a. glioblastoma multiforme
- b. pilocytic astrocytoma
- c. colloid cyst
- d. lymphoma
- e. germinoma

36. Which of the following is frequently found in the cranium arising from the 8th cranial nerve?

- a. neuroblastoma
- b. neurolemmoma
- c. meningioma
- d. germinoma
- e. colloid cyst

37. A mentally retarded young patient with fibromas involving the face/periungual areas, "ash leaf" depigmentation of truncal skin, and seizures is found to have wedge-shaped cortical thickenings on MRI. Histologically, the lesions in the brain are expected to show:

- a. hemangioblastomas
- b. cysts
- c. neurolemommas
- d. gliotic nodules
- e. ependymomas

38. Polycythemia is characteristically associated with which of the following?

- a. tuberous sclerosis
- b. von Hippel-Lindau syndrome
- c. neurofibromatosis
- d. glioblastoma multiforme
- e. Sturge-Weber disease

Dr. Docherty

39. A 42-year-old male patient is transported to your emergency department by paramedics with a history of multiple recurrent seizures for the last 25 minutes. Assuming that IV access has already been established, which one of the following is the most common initial pharmacologic intervention?

- A+D
- a. diazepam (Valium) IV.
  - b. phenobarbital IV.
  - c. phenytoin (Dilantin) IV.
  - d. lorazepam (Ativan) IV.
  - e. lidocaine IV.

40. Headache associated with lethargy or coma presents an acute medical emergency. Possible differential diagnosis would include all of the following EXCEPT

- a. subarachnoid hemorrhage.
- b. meningitis.
- c. encephalitis.
- d. subdural hematoma.
- e. glaucoma.

Dr. Sugerman

41. You meet a new patient and his wife in your examination room for the first time. He is there for an initial and routine examination. He just moved to your city from another state and was referred to you by a class mate of yours. You do not have any records yet, so you must do a complete physical examination and history. There appears to be nothing physically wrong with this 47 year old male from your initial impression of the patient. You ask him about your old class mate and he doesn't know her name or seem to remember her. The wife gives you some information about her practice and the community. During the history the patient can tell you about his early history and details up to about ten years ago. He appears to be hesitant or evasive about anything very recent. His wife starts giving you recent medical information. The wife tells you that about ten years ago he had a boating accident and had to be pulled out of the lake in an unconscious state. She tells you he has some difficulty remembering things since the accident. Your physical examination is normal for a man his age. Your best diagnosis of the area damaged in the accident is/are the . . . ?

- a. unilateral amygdala
- b. bilateral dorsomedial nucleus of the thalami *emotion*
- c. unilateral parahippocampal gyrus
- d. bilateral parahippocampal gyri
- e. bilateral mamillary bodies *STM → LTM*

*STM → LTM*

42. You are examining a sixty-five year old female patient when she appears to have a petit mal seizure. She suddenly becomes violent and starts grabbing at you. You call for security but before they come she quickly calms down and appears confused. She doesn't recall her aggressive actions. What is the most likely site of a seizure?

- a. cingulate gyrus
- b. amygdala
- c. hippocampus
- d. habenula
- e. paraterminal gyrus

*Aggressive*

*Septal → MFB → Vent Teg*

43. A 41 year-old engineer comes into your office. He appears confused. His speech is effortless and clearly pronounced but he can not follow any of your spoken commands. There is left-side neglect and left hemiplegia. Which one of the following is the best diagnosis? *R side lesion*

*speech is good  
Broca is fine*

- a. Right distal posterior cerebral artery occlusion affecting Broca's area in the right cerebral hemisphere.
- b. Right anterior cerebral artery occlusion affecting Broca's area in the right cerebral hemisphere.
- c. Right anterior cerebral artery occlusion affecting Wernicke's area in the right cerebral hemisphere. *only lower ltr then*
- d. Right middle cerebral artery occlusion affecting Broca's area in the right cerebral hemisphere.
- e. Right middle cerebral artery occlusion affecting Wernicke's area in the right cerebral hemisphere.

44. A patient comes into your emergency room complaining of a "sea sick" feeling. You examine him and he has right side miosis and ptosis, left side loss of pain and temperature from his body, right side loss of pain and temperature from his face, his speech is slurred, and he has right side ataxia. Which one of the following is the best diagnosis?

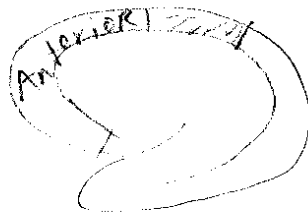
- a. medial medullary syndrome
- b. lateral medullary syndrome
- c. basal pontine syndrome
- d. midbrain syndrome
- e. anterior cerebral artery occlusion

45. A patient comes into your emergency room after collapsing in public. Your physical examination of a patient reveals that she has left side hemiplegia, left side Babinski sign, a right side intention tremor, and her right eye will not turn outwards. Which one of the following is the best diagnosis? *VI jacked Basal pons*

- a. A burst aneurysm from a branch of the posterior cerebral artery on the right side.
- b. An occlusion of the posterior inferior cerebral artery on the left side.
- c. An occlusion of the vertebral artery on the right side.
- d. An occlusion of a pontine branch of the basilar artery on the right side.
- e. An occlusion of the superior cerebellar artery on the right side.

46. You examine a patient a few hours after a stroke. She has right monoplegia, right side Babinski sign, sensory loss from the right lower limb and pelvic area, and confusion. After a few weeks the monoplegia becomes monoparesis and she is incontinent. Which one of the following is the most likely vessel involved in this stroke?

- a. A proximal occlusion of the left anterior cerebral artery.
- b. A distal occlusion of the left posterior cerebral artery.
- c. A proximal occlusion of the left posterior cerebral artery.
- ~~d. A total occlusion of the left internal carotid artery.~~
- ~~e. A proximal occlusion of the right anterior cerebral artery.~~



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Salib; Erik A      I.D. #7845

1/A, 2/B, 3/C, 4/E, 5/A\*, 6/D, 7/A, 8/B, 9/D, 10/B  
11/D, 12/C\*, 13/C, 14/B, 15/E, 16/D\*, 17/A, 18/B, 19/D, 20/D  
21/B, 22/C, 23/D, 24/B, 25/B, 26/E\*, 27/E, 28/E, 29/A, 30/C  
31/B, 32/C, 33/B, 34/A, 35/C, 36/B, 37/D, 38/C\*, 39/A, 40/E  
41/E\*, 42/E\*, 43/E, 44/B, 45/D, 46/A

SCANTRON SCORE = 39.0  
OTHER POINTS = 0.0  
TOTAL SCORE = 39.0/ 46