WRITTEN TEST FOR MFCP OF SCIENTIFIC ASSISTANT (NEUROLOGY) HELD ON 08/07/2015 (To Sl. SA)

1. A single normal electroencephalogram (EEG) in a person thought to have complex partial seizures:
   A. Can rule out a diagnosis of epilepsy
   B. Indicates that a patient does not have mesial temporal sclerosis
   C. Suggests a diagnosis of generalized epilepsy
   D. Should be repeated if clinically indicated

2. If a female has an idiopathic generalized seizure disorder, the likelihood of her offspring having epilepsy is how many times greater than the general population?
   A. 0 B. 2 C. 7 D. 20

3. Which antiepileptic drug should be avoided in treating patients with generalized absence seizures?
   A. Zonisamide B. Valproate
   C. Lamotrigine D. Carbamazepine

4. The overall prevalence of epilepsy is approximately:
   A. 1 per 1,000 B. 6 per 1,000
   C. 25 per 10,000 D. 50 per 10,000

5. Computed tomographic (CT) scans in patients with epilepsy are most likely to miss:
   A. Glioblastomas B. Intracranial hemorrhage
   C. Mesial temporal sclerosis D. Arteriovenous malformations

6. Which of the following antiepileptic drugs is known to increase the risk of neural tube defects in the developing fetus?
   A. Valproate B. Phenobarbital
   C. Gabapentin D. Lamotrigine

7. A previously normal 3-year-old boy presents with language regression over the past 3 months. Video-EEG monitoring revealed left centrotemporal spikes, very frequent in sleep and rare in wakefulness, as well as focal slowing. Which of the following is the most likely diagnosis?
   A. Autistic regression B. Landau-Kleffner syndrome
   C. Continuous spikes and waves during slow wave sleep syndrome
   D. Rett syndrome

8. Which of the following antiepileptic drugs is the least effective in the treatment of generalized tonic-clonic seizures?
   A. Valproate B. Carbamazepine
   C. Ethosuximide D. Lamotrigine

9. A 14-year-old girl with medically intractable seizures presents for follow-up after initiating the ketogenic diet 2 months ago. Her seizure frequency has decreased by 50%. She looks well and has no complaints. Her parents describe her as brighter since initiating the diet. Laboratory testing reveals a serum glucose of 61. The best measure in the management of this patient is:
   A. Discontinuation of the diet. The patient has hypoglycemia. Continuing the diet would place her at undo risk of potentially life-threatening complications.

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B. Continuation of the diet. There is no evidence of symptomatic hypoglycemia. Patients on the ketogenic diet usually have blood glucose levels in the 60s (mg/dL).
C. Workup for a previously unrecognized disorder of gluconeogenesis.
D. Liberalization of the child's carbohydrate intake.

10. Which symptom best distinguishes nocturnal complex partial seizures from nocturnal panic attacks?
A. Anxiety
B. Autonomic activation
C. Confusion
D. Abrupt arousal in panic attacks

11. A 7-month-old infant is brought to his pediatrician for evaluation of recurrent episodes of head drops with simultaneous arm extension, associated with postictal vomiting and crying. These always occur 30 to 45 minutes after feeding. He had two brief febrile seizures 1 month and 2 weeks prior to this admission, each of which lasted 2 minutes and was bilateral and symmetric. Neurologically this is a normal infant. Which is the most likely diagnosis?
A. Severe myoclonic epilepsy of infancy
B. Complex febrile seizures
C. Myoclonic astatic epilepsy
D. Sandifer syndrome

12. EEG biofeedback or neurofeedback:
A. Is an appropriate initial therapy for epilepsy
B. Is a process of increasing or decreasing specific cortical EEG frequencies by operant conditioning
C. Is contraindicated for use in epilepsy, due to potential worsening of seizures
D. Is effective only for complex partial seizures

13. Most of the identified genes associated with epilepsy are:
A. Ion channels and neurotransmitter receptors
B. Antiepileptic drug–metabolizing enzymes
C. Protease inhibitors
D. Cell growth promoters

14. Which of the following antiepileptic drugs is the least likely to have pharmacokinetic interactions with other medications?
A. Carbamazepine
B. Valproate
C. Gabapentin
D. Phenytoin

15. The likelihood of patients with intractable partial epilepsy becoming seizure free with the third or additional antiepileptic drug is approximately:
A. 4%
B. 20%
C. 40%
D. 60%

16. A 23-year-old with a history of complex febrile seizures as a child and 10 years of brief episodes of confusion and hand-wringing had an EEG showing right anterior temporal discharges. What is the most likely additional finding?
A. Increased right hippocampal signal or atrophy
B. Low-grade temporal glioma
C. Cerebellar atrophy
D. Generalized cerebral atrophy

17. The presence of a focal structural lesion is least likely in an otherwise normal child with epilepsy who is experiencing:
    A. Brief losses of consciousness with EEG showing generalized 3-Hz spike-wave discharges
    B. Frequent tonic-clonic convulsions
    C. Recurrent paresthesias
    D. Recurrent myoclonic seizures

18. Which of the following features of an optic neuritis suggests it is due to multiple sclerosis?
    A. Bilateral optic nerve involvement
    B. Presence of a macular star
    C. Presence of papillitis
    D. Presence of pain or discomfort on eye movement

19. In a clinical trial, the difference between clinical significance and statistical significance is:
    A. Statistical significance is more important than clinical significance.
    B. Clinical significance is more important than statistical significance.
    C. Statistical significance is a reflection of a result's believability given predetermined parameters.
    D. Believable clinically significant differences can exist in the absence of statistically significant differences.

20. A 25-year-old man has just been diagnosed by his ophthalmologist with left optic neuritis and referred to you. No diagnostic testing was done other than a clinical eye examination. The most informative single test in this setting is:
    A. Lumbar puncture for myelin basic protein level
    B. Lumbar puncture for immunoglobulin G index and oligoclonal bands
    C. Visual-evoked responses and Somatosensory-evoked potentials
    D. Cerebral MRI

21. A 4-month-old boy has exhibited generalized hypotonia and weakness since birth. He also has scoliosis and slow pupillary responses to light. Which of the following congenital myasthenic syndromes is the most likely diagnosis?
    A. acetylcholine receptor deficiency
    B. acetylcholinesterase deficiency
    C. choline acetyltransferase deficiency
    D. fast-channel syndrome

22. Which of the following patterns of weakness would be most typical of myasthenia gravis?
    A. ankle plantar flexion weaker than ankle dorsiflexion
    B. elbow flexion weaker than shoulder abduction
    C. knee extension weaker than hip flexion
    D. neck flexion weaker than neck extension

23. During generalised tonic clonic seizures urinary incontinence occurs only in the -------- phase
    A. During Initial stage of tonic phase in flexion
    B. During Second stage of tonic phase in extension Clonic phase
    C. immediate postictal phase
    D. During Clonic phase

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24. Pallid breath-holding attacks occurs due to
    A. breath holding that occurs during inspiration
    B. breath holding that occurs during expiration
    C. neurally mediated vagal discharge
    D. hyperventilation

25. EEG is usually abnormal in all of the following, **except:**
    A. Subacute sclerosing panencephalitis
    B. Locked in state
    C. Creutzfeldt — Jakob disease
    D. Hepatic encephalopathy

26. The electromyogram (EMG) is **least useful** for the diagnosis of
    A. Cerebral palsy
    B. Spinal muscular atrophy
    C. Charcot - Marie - Tooth disease
    D. Limb girdle muscular dystrophy

27. Which one of the following NCS/EMG protocols is involved in the electrodiagnostic test approach for amyotrophic lateral sclerosis (ALS)?
    A. Cervical paraspinal muscles should be sampled for denervation
    B. A study for active denervation and reinnervation in 3 of the 4 body segments
    C. Sensory and motor conduction for peripheral nerve showed significantly reduced velocity
    D. Presence of conduction block in 2 or more nonentrapment segments

28. Which of the following statements is **not true** for hereditary motor sensory neuropathy (HMSN) type I?
    A. Slowing of nerve conduction is uniform in all nerves
    B. Sensory studies are usually abnormal
    C. Conduction block and evidence of temporal dispersion are diagnostic hallmarks
    D. Compound muscle action potential (CMAP) amplitude may be very low in the lower extremities

29. The normal sensori-motor nerve conduction with absent F-waves and tendon jerks of a moderately de-saturated weak patient in the intensive care unit may be seen in:
    A. A classical pattern of critical illness myopathy involving both proximal and distal muscles
    B. A classic pattern found in presynaptic disorders such as botulism
    C. The early stages of motor neuron disease (MND) (axonal loss) before the period of Wallerian degeneration
    D. Acute inflammatory demyelinating disorder like GBS

30. A 10-year-old boy started to walk at about 1 year of age, but he has always been awkward going up steps and getting up from the ground, and he has never been able to jump or run. Over the past 2 years, his gait has deteriorated to the point where he can no longer climb steps at all, and he needs support to walk more than a few yards. There is no family history of neurological disease, and the boy's 6-year-old sister and 8-year-old brother are healthy. Examination reveals bilateral calf enlargement; proximal weakness in all four limbs, worse in the lower extremities; weakness of neck flexion; a waddling gait; and Gowers sign. Serum creatine kinase (CK) level is 30 times the upper limit of normal. What is the likely diagnosis in this case?

A. Spinobulbar Muscular Dystrophy
B. Duchenne Muscular Dystrophy
C. Becker Muscular Dystrophy
D. Congenital Inclusion-Body Myopathy

31. Which of the following is the most common cause of recurrent myoglobinuria in adults?
A. Carnitine palmitoyltransferase II deficiency (CPT II)
B. Lactate dehydrogenase (LDH) deficiency
C. Myotonic dystrophy, type 1 (DM1)
D. Phosphofructokinase (PFK) deficiency

32. A 68-year-old man undergoes polysomnography because his wife reports the development of a somewhat alarming high-pitched sound, as if he is straining for air, in addition to his usual snoring. Stridor is suspected and confirmed by laryngoscopic examination, showing restriction of vocal cord abduction. Nocturnal inspiratory stridor is most commonly found in which of the following neurodegenerative illnesses?
A. Alzheimer's disease
B. Dementia with Lewy bodies
C. Huntington's disease
D. Multiple system atrophy

33. A technician is scoring the polysomnographic recording of a 42-year-old man who is being evaluated for sleep apnea. He is currently examining a page of 30-second epochs that each contains approximately 30% to 40% of high-amplitude .03-Hz to 2.0-Hz activity. According to the American Academy of Sleep Medicine sleep scoring manual, he should score these epochs as which of the following sleep-wake states?
A. Non-REM (NREM) 1 B. NREM 2 C. NREM 3 D. NREM 4

34. A 10-year-old boy has episodes occurring during sleep in which he awakens and has rhythmic jerking of his right face, speech arrest, and drooling. The episodes occur in the early part of the sleep period. He has had no daytime episodes. Which of the following EEG findings is most likely to be associated with this patient's disorder?
A. Atypical spike-and-wave
B. Centrotemporal spikes
C. 3 Hz spike-and-wave
D. Normal EEG

35. In order to make a diagnosis of obstructive sleep apnea in an adult patient, what is the minimal respiratory disturbance index required on an overnight polysomnogram?
A. 5 B. 10 C. 15 D. 20

36. Where are the hypocretin-containing neurons located?
A. Lateral hypothalamus
B. Locus coeruleus
C. Midbrain raphe nucleus
D Ventrolateral preoptic nucleus

37. Which of the following conditions is most likely to produce central apneas?
A. Cor pulmonale
B. High-altitude breathing
C. Metabolic acidosis
D. Obesity

38. 15 year old boy has episodes of arousals during sleep since the age of 10 years. He typically gets out of bed and walks around in his room with a blank stare. He does not speak or respond in any manner during these events. In the morning, he has no memory of these events. Which of the following features is **not true** in these conditions?

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A. Epileptiform abnormalities are not seen in EEG
B. Occurrence during REM sleep
C. Occurrence more common in the initial third of sleep duration
D. Provocation of episodes by obstructive sleep aphoea

39. Scientist known for the " Law of Electrostatic Induction"
A. Luigi Galvani B. Volta
C. Humboldt D. Benjamin Franklin

40. Filter band pass is the frequency range of a signal which is transmitted through a filter. The frequency range in which the signal is rejected is called
A. Stop Band B. Transition Band
C. Rejection Band D. Block Band

41. The mechanism to extract very small signals which are buried in larger noices, by their characteristics, "time-locked" occurrence
A. Amplification B. Sweep-rejection
C. Averaging D. Filtration

42. Compression of Ulnar nerve at Guyon's canal produces the following deficits **Except**
A. Weakness and wasting of hypothenar muscles
B. Weakness and wasting of interossei
C. Sensory impairment on dorsal surface of little finger
D. Sensory impairment on palmar surface of little finger

43. Great Auricular nerve is commonly involved in Leprosy. It is a branch of
A. Facial Nerve B. Trigeminal Nerve
C. Eighth Cranial Nerve D. Cervical plexus receiving fibres from C2, C3

44. Muscles which are supplied by the roots of the brachial plexus
A. Deltoid and Supraspinatus B. Rhomboideus and Serratus Anterior
C. Trapezius and Latissimus dorsi D. Supraspinatus and Infraspinatus

45. Clinical similarity between Peroneal neuropathy and Lateral Trunk of Sciatic neuropathy can be differentiated by needle EMG abnormality in
A. Short Head of Biceps Femoris B. Long Head of Biceps Femoris
C. Semitendinosus D. Semimembranosus

46. One statement regarding Phrenic Nerve is **false**
A. Important nerve of cervical plexus – C3, C4, C5
B. Motor nerve supplying the diaphragm
C. It gives sensory fibres to pericardium and peritoneum
D. Right Phrenic nerve is longer and more superficial compared to left

47. Following are RNS findings in Myasthenia gravis **except**
A. Normal CMAP
B. Decremental response at low rate RNS
C. Incremental response at high rate RNS
D. Post-excercise or post-tetanic exhaustion

48. During Single Fibre EMG, 'blocking' typically occurs when the inter-potential interval variability or jitter value exceeds
    - A. 80-100 μs
    - B. 25-50 μs
    - C. 100-150 μs
    - D. 200-500 μs

49. Mark the **false** statement regarding Visual Evoked Potential (VEP)
    - A. In children below 5 years age, Pattern Shift Visual Evoked Potential (PSVEP) is first done. If VEPs are unrecordable, then Flash VEP should be done
    - B. PSVEP is useful in assessing the visual acuity
    - C. Flash VEP only determines the presence or absence of light perception
    - D. Binocular VEP is done in children above one year of age.

50. Regarding Brainstem Auditory Evoked Potential (BAEP) on statement is **not true**
    - A. Commonest inter-peak latencies (IPL) employed in clinical practice are I - V, I - III and III - V
    - B. Typical upper limit of normal I – V IPL is 4.5ms
    - C. Cerebello-Pontine angle tumours cause prolongation of I – III IPL
    - D. Most sensitive segment of study is III – V IPL

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