

श्री चित्रा तिरुनाल आयुर्विज्ञान और प्रौद्योगिकी संस्थान
तिरुवनन्तपुरम - 695 011, केरल, इंडिया
SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCES AND TECHNOLOGY
THIRUVANANTHAPURAM - 695 011, INDIA
(An Institute of National importance under Govt. of India)



ROLL NUMBER

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WRITTEN TEST FOR I FCP – TECHNICAL ASSISTANT (NEUROLOGY)-A

DATE: 08.03.2011

TIME: 10 A.M

DURATION: 60 MINUTES

Total Marks: 50

INSTRUCTIONS TO THE CANDIDATE

1. Write your Roll Number on the top of the Question Booklet and in the Answer Sheet and affix your signature.
2. There will not be any Negative Marking.
3. Each question carries 1 mark.
4. Write legibly the alphabet of the most appropriate answer in the answer sheet provided.
5. Over writing is not permitted.
6. No clarifications allowed.
7. Candidate should hand over the question paper and answer sheet to the invigilator before leaving the examination hall.

[Handwritten Signature]
Signature of the Candidate

1. In most EEG machines, a low frequency filter of 1 Hz and a high frequency filter of 70 Hz will attenuate the recorded activity of the waveforms above and below that range by what percentage? :

A.10

B.30

C.40

D.70

2. The purpose of a ground electrode is to:

A.Protect the patient

B.Reduce noise contamination

C.Ensure filters function adequately

D.Prevent voltage reduction while recording

3.Which of the following is a characteristic of slow wave sleep

A.Increased muscle tone

B.Increased parasympathetic activity

C.Rapid eye movements

D.Increased blood flow to the cerebral cortex

4. When electrical activity is recorded from the cortex in cats where there is a lesion isolating the brain stem from spinal cord , what will you find

A.EEG activity is abolished

B.Dysynchronisation of EEG activity

C.No effect on Sleep and wake cycles

D.Continuous slow wave sleep

5. The median raphe nucleus releases which neurotransmitter

A.Noradrenaline

B.Serotonin

C.Melatonin

D.Acetylcholine

6. The EEG signifies:

- A. Depolarization of a single neuron**
- B. Hyperpolarization of a group of neurons**
- C. Resting membrane potential of a group of neurons**
- D. Sum of the EPSP and IPSPs of a group of neurons**

7. Cause of very low electrode impedance may be:

- A. Less electrode paste**
- B. Excess sweat over the region**
- C. Loose electrode contact**
- D. Skull defect**

8. Biological clock is located in which part of brain

- A. Optic chiasm**
- B. Nucleus of the solitary tract**
- C. Suprachiasmatic nucleus**
- D. Gigantocellular tegmental field**

9. Modified 10-20 system has the advantage over the original 10-20 system for:

- A. Improve localization of ictal rhythms of inter-ictal epileptiform discharges**
- B. Increase the spatial resolution of the waveforms**
- C. Detect highly localized evoked potentials**
- D. All of the above**

10. Increasing the time constant of the recording pen of the EEG will cause:

- A. Faster waves of shorter duration to be recorded.**
- B. Slow waves of longer duration to be recorded**
- C. Attenuation of EEG waveforms**
- D. Appearance of 50Hz artefact**

11. During analogue to digital conversion, if the fastest frequency of the recorded signal is 70Hz, the sampling rate must be atleast:

- A.100Hz**
- B.120Hz**
- C.140Hz**
- D.210Hz**

12. True phase reversal over an electrode chain is typically seen in

- A.Mesial temporal lobe epilepsy**
- B.Nocturnal frontal lobe epilepsy**
- C.Benign Rolandic Epilepsy**
- D.Symptomatic parietal lobe epilepsy**

13. While recording if the patients eyes deviate voluntarily to the left side, the maximal positivity of the movement artefact will be evident over which electrode:

- A.Fp1**
- B.F7**
- C.Fp2**
- D.F8**

14. The high frequency filter determines which part of the calibration pulse:

- A.Rapidity of return to the baseline**
- B.Slope of the initial upward deflection**
- C.Duration of the square wave**
- D.Decrement in amplitude**

15. Extension cords must never be used to connect the EEG machine to the mains because:

- A.It may cause 50Hz artefact**
- B.It destabilize the machine**
- C.It may raise leakage current to dangerous levels**
- D.It increases impedance of the electrodes**

16. Galvanic skin response in EEG is characterized by:

- A.Occurs at low skin temperature**
- B.Due to high impedance of the recording channel**

C.Occurs when the patient is asleep

D.Produces a triple phase reversal in transverse bipolar montage

17. The common-mode voltage gain is

A.smaller than differential voltage gain

B.equal to voltage gain

C.greater than differential voltage gain

D.None of the above

18. True about photomyoclonic responses is:

A.These are cerebral responses

B.Occur when eyes are open

C.Inhibited by eye opening

D.Seen in patients with brain tumors

19. The usual discharge frequency in absence attacks of childhood absence epilepsy is:

A.2-2.5Hz

B.2.5-3Hz

C.3-4Hz

D.5-7Hz

20. 50Hz artefacts is usually due to:

A.Faulty ground connection

B.Salt bridge phenomena

C.Short circuit in the amplifier

D.Tense patient

21. Hyperventilation as an activation procedure is contra-indicated in:

A.Cardiac failure

B.Sickle cell disease

C.Moyamoya disease

D.All of the above

22. What is the level of the voltage between the input terminals of an op-amp?

A. Virtually zero

B 5 V

C 18 V

D 22 V

23. Recommended sensitivity while recording EEG in patient of suspected brain death is:
- A. 5 micrV/mm
 - B. 7 micrV/mm
 - C. 2 micrV/mm
 - D. 10 micrV/mm
24. True about Mu rhythm is:
- A. 5-7 Hz rhythm
 - B. seen over temporal electrodes
 - C. due to saccadic eye movements
 - D. blocked by contralateral hand movements
25. If the resistance in a circuit with constant voltage increases, the current will
- A. Increase
 - B. Decrease
 - C. Stay the same
 - D. Not enough information
26. This Scientist's analysis of Leyden Jar experiment led to the discovery of the law of electrostatic induction.
- A. Luigi Galvani
 - B. Benjamin Franklin
 - C. Fowler
 - D. Volta
27. In concentric needle electrode, the reference electrode is
- A. Surface electrode placed near the needle
 - B. Electrode over the muscle tendon
 - C. Metal cannula
 - D. Disc electrode over the origin of the muscle
28. The length of time during which a rapid change in potential occurs from a baseline value is called
- A. Rise time of a potential
 - B. Duration of a potential
 - C. Latency of a potential
 - D. Phase shift
29. A mechanism to extract very small signals which are buried in larger noise
- A. Amplification
 - B. Removal of electrode impedance
 - C. Filter Band Pass
 - D. Averaging
30. Standard nerve stimulators have the following distance between anode and Cathode
- A. 2-3 cm
 - B. 1-2 cm
 - C. 3-4 cm
 - D. 5 cm

31. Inadvertant placement of anode close to the active recording electrode results in
- A. Prolongation of distal latency and reduction of nerve conduction velocity
 - B. Reduction of action potential amplitude
 - C. Shortens latency
 - D. Volume conduction
32. A number of factors contribute to the generation of stimulus artifacts
- A. Flow of current between active and reference electrodes
 - B. Imbalance of impedance between active and reference electrodes
 - C. Capacitive coupling between the stimulating and recording leads
 - D. All of the above
33. In normal myelinated axons, impulses propagate by
- A. Continuous bi-directional spread
 - B. Salutatory conduction
 - C. Transferred conduction
 - D. Internodal conductance
34. Conduction velocity along the peripheral nerve is faster if
- A. Axon is larger
 - B. Myelin sheath is thicker
 - C. Internodal distance is longer
 - D. All of the above
35. The onset latency following orthodromic conduction when compered to antidromic is
- A. Longer
 - B. Same
 - C. Shorter
 - D. Highly variable
36. The repetitive stimulation test is positive, when the decremental response is more than
- A. 5%
 - B. 10%
 - C. 20%
 - D. 50%
37. Cornbolath's criteria for conduction block states that the amplitude of proximal CMAP should be less than that of distal CMAP by
- A. 50%
 - B. 30%
 - C. 15%
 - D. 70%
38. The initial positive peak in SNAP giving it a triphasic appearance is a feature of
- A. Antidromic potential
 - B. Orthodromic potential
 - C. Axon reflex
 - D. Somato sensory evoked potential

39. For each degree Celsius fall in temperature, the distal latency in nerve conduction study
- A. Increases by 0.3 msec
 - B. Reduces by 0.1 msec
 - C. No change occurs
 - D. Increases by 0.5 msec
40. Martin-Gruber anastomosis denotes abnormal communication between
- A. Radial and Ulnar nerves
 - B. Radial and Median nerves
 - C. Median and Ulnar nerves
 - D. Superficial Peroneal and Sural nerves
41. Internal comparison study for confirmation of Carpal Tunnel Syndrome requires a delay in the sensory latency between Ulnar and Median nerves of
- A. More than 0.4 msec
 - B. More than 1 msec
 - C. More than 2 msec
 - D. More than 0.6 msec
42. The muscle supplied by the roots of Brachial plexus
- A. Supraspinatus
 - B. Pectoralis major
 - C. Teres major
 - D. Rhomboidius
43. In Thoracic Outlet Syndrome, the median nerve SNAP is:
- A. reduced in amplitude
 - B. normal
 - C. prolonged latency
 - D. reduced in velocity
44. Temporal dispersion is a feature of
- A. Axonal neuropathy
 - B. Sensory neuropathy
 - C. Segmental demyelination
 - D. Axonal Sprouting
45. The most important muscles to be tested for denervation signs in radiculopathy
- A. All limb muscles supplied by the same myotome
 - B. Absence of above changes in adjacent myotome
 - C. Paraspinal muscles
 - D. Diaphragm
46. F Wave responses assess the integrity of
- A. Anterior horn cells
 - B. Proximal part of nerve and roots
 - C. Axon terminals
 - D. Neuromuscular junction

47. The following statement about Saphenous nerve is **WRONG**
- A. Pure sensory nerve
 - B. Mixed nerve
 - C. Supplies medial leg and foot
 - D. Largest and longest branch of Femoral nerve
48. Late responses does **NOT** include
- A. F Wave responses
 - B. H reflex
 - C. Axon reflex
 - D. Sympathetic skin response
49. EMG examination of a patient suspected of Polymyositis is not complete without study of
- A. Paraspinal muscles
 - B. Tongue
 - C. Deltoid
 - D. Trapezius
50. The most important test for differentiating between presynaptic and postsynaptic neuromuscular transmission disorders
- A. High rate Repetitive Nerve stimulation
 - B. Low rate Repetitive Nerve stimulation
 - C. Tetanic stimulation
 - D. Single fibre EMG