WRITTEN TEST FOR MFCP OF TECHNICAL ASSISTANT (NEUROLOGY) A TO B

1) During Analog to digital conversion, which formula is used to calculate the cut-off frequency of the low pass filter: (R=Resistor, C= Capacitor, V= Voltage)
    a) $1/(\pi RC)$
    b) $1/(2\ \pi R)$
    c) $V/(2\ \pi RC)$
    d) $1/(2\ \pi RC)$
2) Aliasing during EEG signal acquisition commonly arises due to:
    a) Ultra fast sampling rate
    b) 50Hz artifact
    c) Inadequate sampling rate
    d) Ballistocardiographic artefacts
3) Which of the following steps is least likely to reduce electromagnetic artifacts during EEG/EMG:
    a) Switching on the Notch filter
    b) Shielding all equipment with a metal case connected to the ground
    c) Plugging all equipment to the same connection point
    d) Ensuring power cables run in parallel
4) Which of the following is true regarding psychomotor variant in EEG:
    a) Reported prevalence in EEG records is 0.5-2%
    b) Demonstrates a tendency for evolution
    c) Is polymorphic and rhythmic
    d) Infrequent during transition between wakefulness and drowsiness
5) Stage REM during polysomnography is characterized by:
    a) High amplitude low frequency EEG
    b) HighChin EMG
    c) Phasic EMG activity may occur
    d) 7-8Hz vertex positive waves just before phasic REM stage
6) Which of the following are believed to arise from the muscle fibre:
    a) Fascicluations
    b) Neuromyotonia
    c) Myokymia
    d) Complex repetitive discharges

7) The equivalent of visual evoked potentials on EEG is:
   a) Mu rhythm
   b) Photic drive
   c) Posterior occipital slow waves of youth
   d) 14-6 Hz waves

8) High impedance electrodes can cause which of the following phenomena during EEG:
   a) Pulse artifact
   b) Salt-bridge phenomenon
   c) Photoelectric response
   d) Eye movement artifacts

9) The amount by which the differential amplifier increases the magnitude of the input signal is its
   a) Sensitivity
   b) Input impedance
   c) Gain
   d) Filter

10) Which of the following EEG patterns would be enhanced by a paper speed of 15 mm/second?
   a) 14 and 6/second positive spikes
   b) FIRDA
   c) Mirror focus
   d) Photic driving

11) Which of the following is attenuated by a time constant of .03 seconds?
   a) 10 Hz
   b) 15 Hz
   c) 25Hz
   d) 3Hz

12) The best electrode for recording DC potentials is composed of
   a) Platinum
   b) Silver chloride
   c) Gol
   d) Tin

13) AC impedance should be measured rather than DC resistance because

a) Measuring resistance causes electrode polarization

b) Measuring resistance is a time saver to the technologist

c) Measuring impedance causes electrode polarization

d) Measuring impedance causes discomfort to the patient

14) Which of the following blood vessels is most frequently involved in cerebrovascular accidents?

a) External carotid artery

b) Jugular vein

c) Basilar artery

d) Internal carotid artery

15) Myxedema is a disorder of

a) Liver finction

b) Muscles

c) Thyroid function

d) The eyes

16) Which nerve is a branch of the lateral cord?

a) Musculocutaneous

b) Radial

c)Ulnar

d) Thoracodorsal

17) Which of the following is the most likely in a lower trunk plexopathy?

a) Weakness of pronator teres

b) Weakness of all ulnar-innervated muscles

c) Absent triceps reflex

d) Numbness in the distribution of the lateral antebrachial cutaneous nerve

18) Coulomb's Law deals with

a) Charge

b) Volume conduction

c) Frequency

d) Phase

19) Which of the following is seen in a patient with narcolepsy?

a) Sleep enuresis
b) Hypnagogic hallucinations
c) Sleep walking
d) Emotional instability

20) In planning electrophysiological study for a patient with unilateral foot drop, EMG of which of the following muscles is the most useful in differentiating a sciatic neuropathy from a common peroneal neuropathy at fibula?

a) L5 paraspinal muscle
b) Gluteus medius
c) Gluteus maximus
d) Short head of biceps femoris

21) Ulnar nerve stimulation at wrist and elbow showed a 50% drop in amplitude of the CMAP in proximal stimulation. Which one of the following scenarios is NOT likely

a) Submaximal stimulation at elbow
b) Martin Gruber anastomosis
c) Co-stimulation of median nerve at wrist
d) Demyelinating lesion of ulnar nerve in the upper third of the arm

22) In evaluating myopathies, which of the following EMG parameters of motor unit action potentials (MUP) is the most important measure?

a) MUP amplitude
b) MUP duration
c) Phases of MUP
d) Recruitment

23) Which of the following methods is the most likely to reduce a 50 Hz artefact during EMG recording?

a) Use of metal examining table
b) Grounding the examiner
c) Turning off power to the offending appliance
d) Placing the patient close to the oscilloscope screen

24) Which of the following is NOT an effect of increasing the temperature?

a) Shortening of distal latency
b) Increase of conduction velocity
c) Reduction of CMAP amplitude
d) Improvement of conduction block in demyelinated fibres

25) Lateral antebrachial cutaneous nerve conduction studies which root of the brachial plexus

a) C5 b) C6 c) C7 d) C8

26) Which of the following electrical abnormalities is noted very early in the course of Guillain Barre syndrome?

a) Loss of F waves
b) Median sural dichotomy
c) Conduction blocks in upper limb nerves
d) Reduction of peroneal CMAP amplitude

27) Which of the following statements is TRUE regarding jitter studies with single fibre EMG?

a) Highly sensitive for neuromuscular junction transmission disorders
b) Highly specific for neuromuscular junction transmission disorders
c) The main determinant for jitter is the transmission time along nerve twigs
d) The sources of EMG are the closest 3 – 5 muscle fibres

28) How does Lambert Eaton myasthenic syndrome (LEMS) vary from myasthenia gravis in electrodiagnostic studies?

a) Baseline CMAP amplitude is low in LEMS
b) Slow repetitive nerve conduction does not show decrement in LEMS
c) Lower limb sensory axonopathic changes are common in LEMS
d) Normal jitter in single fibre EMG studies occurs in LEMS

29) Which of the following conditions does NOT show myotonia in EMG?

a) Paramyotonia congenita
b) Hyperkalemic periodic paralysis
c) Hypokalemic periodic paralysis
d) Autosomal dominant myotoniacongenita

30) What is the advantage ofantidromic sensory conduction technique over orthodromic conduction using surface electrodes?

a) Supramaximal stimulation need not be used for antidromic technique
b) Muscle artefact can be avoided by antidromic method
c) Onset and peak latencies are more reliable by antidromic method
d) Antidromic response is larger than orthodromic response

31) Which of the following technical factors is NOT crucial in slow repetitive nerve stimulation?

a) Limb immobilization
b) Near nerve temperature of 25^0 C
c) Supramaximal stimulation
d) Train of stimuli more than four

32) What is the source of fasciculation potential?

a) Single muscle fibre
b) Group of muscle fibres
c) Motor neuron
d) Terminal axon

33) Temporal dispersion in nerve conduction study

a) Occurs due to different rates of conduction of nerve fibres
b) Reflects the total number of axons in a nerve
c) Is more prominent in motor than sensory nerves physiologically
d) Is more common with distal than proximal stimulation

34) Which of the following responses is always obtained by submaximal stimulation?

a) F response b) H reflex c) Blink reflex d) Cutaneous silent period

35) Which of the following findings in nerve conduction study is uncommon with neurogenic thoracic outlet syndrome?

a) Absent ulnar SNAP
b) Absent median SNAP
c) Absent medial antebrachial cutaneous nerve SNAP
d) Reduced median CMAP amplitude

36) Which of the following abnormalities is commonly noted in brainstem auditory evoked potential in multiple sclerosis?

a) Prolongation of I-V interpeak latency
b) Absence of wave I
c) Reduction of wave I/V ratio
d) Increased amplitude of wave III

37) Which nerve supplies serratus anterior?

a) Axillary nerve
b) Thoracodorsal nerve
c) Long thoracic nerve
d) Dorsal scapular nerve

38) At what age does nerve conduction velocity reach normal adult values?

a) 2 years
b) 4 years
c) 6 years
d) 10 years

39) Which nerve is affected in 'Saturday night palsy'?

a) Median nerve
b) Ulnar nerve
c) Radial nerve
d) Axillary nerve

40) Which of the following is true about various stages of the sleep cycle in adults

a) REM sleep constitutes 50% of sleep time
b) N2 stage occupies 45-55% of normal sleep
c) N1 stage occupies 15-20% of sleep time
d) N3 stage occupies 3-8% of sleep time

41) Regarding technical aspects of visual evoked potentials is **not** true

a) Smaller check-size produces large amplitude P100 response
b) Contrast reduction reduces the P100 latency along with increase in amplitude
c) Color red-green may not elicit VEP in some normal subjects
d) Stimulus field size if reduced can cause reduction in P100 amplitude

42) Which of the following is **not** a feature of flash VEP

a) Can be elicited under anesthesia or coma
b) Can be elicited in young children
c) Red-green flashes are recommended
d) Elicited with 1,3,6,10,20 flashes/second

43) All of the following needs to be done during elicitation of BERA **except**

a) Monoaural stimulation should be used
b) Click intensity should be 60-70 dB above click perception threshold
c) Contralateral ear receives masking noise of 5-10 dB lesser intensity
d) A repetition rate of 10-15Hz should be used

44) In BERA which of the waveforms originate from the cochlear nucleus

a) Wave II
b) Wave III
c) Wave IV
d) Wave V

45) Fixation-off sensitivity on EEG should be checked in which of the following conditions

a) Childhood occipital lobe epilepsy
b) Juvenile absence epilepsy
c) Rasmussen's encephalitis
d) Epilepsy with myoclonic absences

46) Which of the following is **true** regarding photoparoxysmal response (PPR) during EEG

a) Stimulation at frequencies of 1-5 Hz usually produces a PPR in juvenile myoclonic epilepsy
b) Repetition of a certain frequency on intermittent photic stimulation does not lead to potentiation or habituation of PPR
c) Red-color flicker at wavelengths of 660-720nm is more likely to provoke seizures
d) Does not depend on the distance from the source/stroboscope

47) In which stage of sleep are sleep pindles and K complexes noted

a) Stage 1
b) Stage 2
c) REM sleep
d) Slow wave sleep

48) Which of the following is **true** regarding median somatosensory evoked potentials

a) P22 wave corresponds to primary sensory cortex
b) N20 wave corresponds to primary motor cortex
c) P14 wave originates from subcortical regions
d) N11 wave originates in the dorsal column

49) Which of the following concepts will explain the sleep-wake homeostasis?

a) The hippocampus circuits
b) The circadian clock
c) The central executive
d) The theory of mind

50) Which of the following is **not** a feature of REM sleep

a) Increased cholinergic activity
b) Synchrony of thalamocortical synaptic activity
c) Limb atonia
d) Desynchronized neuronal discharge patterns

MFCP OF TECH. ASST. (NEUROLOGY) A TO B (13/03/2018)

ANSWER KEY

1	D	21	A	41	B
2	C	22	B	42	C
3	D	23	B	43	C
4	A	24	D	44	A
5	C	25	B	45	A
6	D	26	A	46	C
7	B	27	B	47	B
8	C	28	A	48	D
9	C	29	C	49	B
10	B	30	D	50	B
11	D	31	B		
12	B	32	C		
13	A	33	A		
14	D	34	B		
15	C	35	B		
16	A	36	A		
17	B	37	C		
18	A	38	B		
19	B	39	C		
20	D	40	B		