

## NADAR SARASWATHI COLLEGE OF ENGINEERING AND TECHNOLOGY, THENI.

<b>Course/Branch</b> : BE/ECE	<b>Year / Semester</b> : III/V	Format No.	NAC/TLP-07a.13
<b>Subject Code</b> : OMD551	<b>Subject Name</b> : Basics of biomedical instrumentation	Rev. No.	02
<b>Unit No</b> : 2	<b>Unit Name</b> : Biosignal Characteristics And Electrode configurations	Date	30.09.2020

### OBJECTIVE TYPE QUESTION BANK

S. No.	Objective Questions (MCQ / True or False / Fill up with Choices )	BTL
1.	Which of the following is considered to be the primary pacemaker of the heart? <b>a) sino-atrial node</b> b) atrio-ventricular node c) purkinje fibres d) bundle of his	L1
2.	Atrio ventricular node is located at _____ a) upper part of the heart wall between the two atrial b) lower part of the heart wall above the two atrial <b>c) lower part of the heart wall between the two atrial</b> d) upper part of the heart wall above the two atrial	L1
3.	Atrio ventricular node is located at _____ a) upper part of the heart wall between the two atrial <b>b) lower part of the heart wall above the two atrial</b> c) lower part of the heart wall between the two atrial d) upper part of the heart wall above the two atrial	L5
4.	Which of the following is a wireless ECG acquiring system? a) pregelled disposable electrodes b) limb electrodes c) pasteless electrodes <b>d) smart pad</b>	L3
5.	Before placing the electrodes the skin should be _____ a) wet <b>b) dry</b> c) hairy d) oily	L3
6.	The contraction of the skeletal muscles results in the generation of action potential in the individual muscle fibers. Record of this action potential is called _____ a) ECG <b>b) EMG</b> c) EEG d) EKG	L2
7.	In voluntary contraction of the skeletal muscles, the muscle potential ranges from _____ <b>a) 50 uV – 5 mV</b> b) 50 mV – 5 V c) 0.05 uV – 2 mV d) 50 mV – 500 mV	L3
8.	According to the international 10/20 system to measure EEG, even number denotes which side of the brain? a) left b) top c) bottom <b>d) right</b>	L2

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9.	Letter F in the EEG electrode placement system denotes? a) front b) face c) <b>frontal lobe</b> d) fast	
10.	Normal EEG frequency range is _____ a) 50-500Hz b) <b>0.5-50HZ</b> c) 0.05-5Hz d) 1-200Hz	
11.	The letter T in the EEG electrode placement system denotes? a) <b>temporal lobe</b> b) temper lobe c) trace d) timpanic	
12.	According to the international 10/20 system to measure EEG, odd number denotes which side of the brain? a) <b>left</b> b) right c) top d) front	
13.	The delta wave in EEG ranges from _____ a) <b>0.5-4Hz</b> b) 4-8Hz c) 8-13Hz d) 13-22Hz	
14.	Disturbance in the EEG pattern resulting from the external stimuli is called _____ a) provoked response b) ckoored response c) <b>evoked response</b> d) impulse response	
15.	The peak to peak amplitude of the waves that can be picked from the scalp is _____ a) 100mV b) 100V c) <b>100uV</b> d) 10mV	
16.	Which rhythm is the principal component of the EEG that indicates the alertness of the brain? a) theta rhythm b) gamma rhythm c) beta rhythm d) <b>alpha rhythm</b>	

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17.	<p>_____ are devices which convert one form of energy into another.</p> <p><b>a) transducers</b> b) electrodes c) impulses d) opamp</p>	L2
18.	<p>Which amplifier will reject any common mode signal that appears simultaneously at both amplifier input terminal and amplifies only the voltage difference that appears across its input terminals?</p> <p>a) ac coupled amplifiers <b>b) differential amplifiers</b> c) carrier amplifiers d) dc amplifiers</p>	L3
19.	<p>Which amplifier has a limited frequency response?</p> <p>a) differential amplifier <b>b) dc amplifiers</b> c) ac coupled amplifiers d) carrier amplifiers</p>	L1
20.	<p>_____ are used with transducers which require an external source of excitation.</p> <p><b>a) carrier amplifiers</b> b) dc amplifiers c) ac coupled amplifiers d) differential amplifier</p>	L2
21.	<p>DC amplifiers are employed with _____ feedback type.</p> <p>a) positive <b>b) negative</b> c) depends on the application d) can be any positive or negative does't matter</p>	L1
22.	<p>DC amplifiers are mostly used for very low level applications because they offer very less dc drift and high common mode rejection capabilities.</p> <p>a) True <b>b) False</b></p>	L1
23.	<p>Chopper stabilized dc amplifiers are complex amplifiers having _____ amplifiers incorporated in the module.</p> <p>a) 1 b) 2 <b>c) 3</b> d) 4</p>	L2

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24.	Which of the following amplifier is employed with resistive transducers which require an external source of excitation? a) differential amplifier b) ac coupled amplifier c) carrier amplifier <b>d) dc bridge amplifier</b>	L2
25.	Chopper input dc amplifiers are preferred for low level inputs to instrumentation systems because of their high sensitivity, negligible drift and excellent common mode rejection capability. <b>a) True</b> b) False	L1
26.	Which of the following amplifier circuitry is employed to reduce the hum noise generated by the power supply in the ECG circuit? a) band pass filters b) high pass filters <b>c) notch filters</b> d) low pass filters	L1
27.	The ideal membrane should possess _____ to water. a) low permeability to water <b>b) high permeability to water</b> c) medium permeability to water d) high permeability to waste	L2
28.	Voltage difference between an active electrode on the scalp with respect to reference electrode at ear lobe or any other part of body is known as _____ recording. a) _____ <b>b) Monopolar</b> Bipolar c) Unipolar d) Nonpolar	L3
29.	How is bipolar recording done? a) Omni channel EEG <b>b) Multi channel EEG</b> c) Uni Channel EEG d) Non Channel EEG	L1
30.	CRO stands for _____ a) Common Ray Oscilloscope <b>b) Cathode Ray Oscilloscope</b> c) Cathode Ray Oscillator d) Common Ray Oscillator	L2

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31.	Which of the following is not a passive transducer? <b>a) Strain gauge</b> b) Ultrasonic transducer c) IR sensor d) Doppler effect transducer	L2
32.	_____ refers to the degree of repeatability of a measurant. a) accuracy <b>b) precision</b> c) resolution d) sensitivity.	L1
33.	The term _____ is used when referring to the frequency content of a signal. a) angular momentum <b>b) spectrum</b> c) scope d) bandwidth	L5
34.	The process of obtaining the spectrum of a given signal using the basic mathematical tools is known as _____. a) time domain analysis b) mathematical analysis <b>c) spectral analysis</b> d) pseudo analysis	L2
35.	Bio potential amplifiers have _____ input terminals. <b>a) 3</b> b) 4 c) 5 d) 6	L2
36.	CMRR is measured in _____. a) V/s <b>b) dB</b> c) dB/s d) dB/ms	L1
37.	CMRR of the preamplifiers should be as high as possible. <b>a) True</b> b) False	L2

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38.	The common mode rejection for most op-amps is typically between _____ a) 10-50dB b) 20-40dB c) <b>60-90dB</b> d) 100-120dB	L3
39.	The output of differential gain is given by _____ a) <b>(difference of the two input voltage)*(feedback resistance/input resistance)</b> b) (sum of the two input voltage)*(feedback resistance/input resistance) c) (difference of the two input voltage)*(input resistance/feedback resistance) d) (sum of the two input voltage)*(input resistance/feedback resistance)	L1
40.	In order to be able to minimize the effects of changes occurring in the electrode impedances, it is necessary to employ a preamplifier having a high input impedance. a) <b>True</b> b) False	L2
41.	The impedance of the input should be _____ in order to obtain high CMRR in the differential amplifier. a) low b) <b>High</b> c) Does not matter d) Very low	L2
42.	Which of the following instrument is used to measure the oxygen saturation level of blood in localized areas of oxygen? a) Ear Oximeter b) Pulse Oximeter c) <b>Skin reflectance Oximeter</b> d) Intravascular Oximeter	L3
43.	What was utilized around the light source to enhance the signal? a) <b>Photodiodes</b> b) Optical Shield c) Ceramic Substrate d) Red and infrared LED's	L2
44.	What are used as light source in Skin Reflectance Oximeter? a) Photodiode b) <b>Red and infrared LED's</b> c) Flashtube d) Arc Lamp	L3
45.	The sensitivity of an electrocardiograph is typically set at 10 mm/mV. a) <b>True</b> b) False	L2