

# 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> : 1	<b>Unit Name</b> : Bio Potential Generation and Electrodes Types	Date	30.09.2020

## OBJECTIVE TYPE QUESTION BANK

S. No.	Objective Questions (MCQ / True or False / Fill up with Choices )	BTL
1.	Source of Bioelectric potential is _____ in nature. a) electronic b) electric c) <b>ionic</b> d) mechanical	L1
2.	The principal ion that is not involved with the phenomena of producing cell potentials is _____ a) sodium b) potassium c) chlorine d) <b>hydrogen</b>	L1
3.	What is the relatively static membrane potential of quiescent cells called? a) half-cell potential b) action potential c) <b>resting membrane potential</b> d) cell potential	L5
4.	The variation of the electrical potential associated with the passage of a pulse along the membrane of a muscle cell or a nerve cell is called _____ a) muscle potential b) <b>action potential</b> c) resting potential d) half cell potential	L3
5.	Cells depolarize and action potential is generated as soon as a stimulus is applied. a) True b) <b>False</b>	L3
6.	After a cell is stimulated, a finite period of time is required for the cell to return to its pre-stimulus state. This period is known as _____ a) restoration period b) <b>refractory period</b> c) regain period d) regenerative period	L2
7.	Electrooculography (EOG/E.O.G.) is a technique for measuring what? a) abnormal function of the retina b) heart rate c) respiration rate d) <b>cornea-retinal standing potential</b>	L3
8.	EKG stands for _____ a) <b>Electrocardiography</b> b) Electroencephalography c) Electromyography d) Electrotokinectography	L2

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9.	lectrodes make a transfer from the _____ in the tissue to the electronic conduction which is necessary to make measurements. a) electronic conduction <b>b) ionic conduction</b> c) electric conduction d) impulsive conduction	L2
10.	Surface electrodes damage the living tissues. a) True <b>b) False</b>	L1
11.	Deep-seated electrodes indicates the electric potential difference arising _____ the living tissues or cells. <b>a) inside</b> b) outside c) around d) adjacent	L1
12.	Impedance pneumography is a commonly-used technique to monitor a person's _____. <b>a) respiration rate</b> b) heart rate c) pulse rate d) skin impedance	L2
13.	Electrode paste _____ a) increases contact impedance b) equates contact impedance <b>c) reduces contact impedance</b> d) absorbs contact impedance	L3
14.	All electrode potentials are measured with respect to which reference electrode? a) hydrogen electrode b) platinum electrode c) calomel electrode <b>d) hydrogen absorbed on platinum electrode</b>	L2
15.	Off-set potential is _____ <b>a) difference in half-cell potentials between two electrodes</b> b) sum of half-cell potentials between two electrodes c) average of half-cell potentials between two electrodes d) complement of half-cell potentials between two electrodes	L3
16.	Which of the following is not preferred for electrode making? a) Ag-AgCl b) Copper <b>c) Stainless-steel</b> d) Gold	L1

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17.	Which of the following statement is false about polarizable electrodes? a) they are made using stainless steel b) used for recording resting ECG c) retain a residual charge when exposed to large pulse of energy <b>d) can transmit small bioelectric signals even after getting exposed to large pulse of energy</b>	L1
18.	Which electrodes can work even after being induced to large electric discharge such as defibrillation? a) polarizing electrodes b) magnetic electrodes <b>c) non-polarizing electrodes</b> d) electrolytic electrodes	L1
19.	On increasing the chloride deposit the Ag-AgCl electrode _____ <b>a) increases the impedance</b> b) reduces impedance c) has no effect on impedance d) cannot be determined	L3
20.	Ag-AgCl electrodes are _____ a) polarized <b>b) non-polarized</b> c) partially polarized d) cannot be said	L2
21.	Silver -Silver Chloride electrodes are prepared by the process of _____ a) centrifugation b) etching c) manually <b>d) electrolysis</b>	L3
22.	Electrocardiography was invented by _____ <b>a) Willem Einthoven</b> b) Robert Koch c) Werner Forssmann d) Gertrude B.Elion	L2
23.	MRI stands for _____ a) Mechanical Resonance Imaging <b>b) Magnetic Resonance Imaging</b> c) Mutually Related Imaging d) Magnetic Resultant Imaging	L3

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24.	The interior of the neuron is at a potential of about _____ mV relative to the exterior. a) <b>-70</b> b) +70 c) -170 d) +170	L2
25.	Tricuspid valve is also called _____ a) Left Atrio-ventricular valve b) Right Atrio-ventricular valve c) Pulmonary valve d) <b>Cardiac valve</b>	L1
26.	From instruments point of view, heart is a _____ system. a) pneumatic b) electric c) electronic d) <b>hydraulic</b>	L1
27.	The basic functional unit of nervous system is _____ a) nerves b) axon c) <b>neuron</b> d) dendrite	L2
28.	The material used in limb surface electrode is _____ a) <b>German silver</b> b) Copper c) Gold d) Platinum	L3
29.	Welsh cup electrodes have _____ a) low contact impedance b) negligible contact impedance c) <b>high contact impedance</b> d) zero contact impedance	L1
30.	In floating electrodes metal electrode does not make direct contact with the skin. a) <b>True</b> b) False	L2

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31.	<p>The main design feature of pregelled disposable electrodes which helps to reduce the possibility of artefacts, drift and baseline wandering is _____</p> <p>a) low absorbency buffer layer with isotonic electrolyte  <b>b) high absorbency buffer layer with isotonic electrolyte</b>          c) high absorbency buffer layer without isotonic electrolyte          d) low absorbency buffer layer without isotonic electrolyte</p>	L2
32.	<p>Recording electrical activities associated with heart is known as _____</p> <p>a) EEG          b) EOG          c) EMG  <b>d) ECG</b></p>	L1
33.	<p>Which of the following is a preferred electrode for measuring EMG?</p> <p>a) surface electrodes  <b>b) needle electrodes</b>          c) pregelled electrodes          d) scalp electrodes</p>	L5
34.	<p>Generally what is the material of needle electrodes?</p> <p><b>a) stainless steel</b>          b) copper          c) lead          d) iron</p>	L2
35.	<p>Do metallic micro electrodes exist.</p> <p><b>a) True</b>          b) False</p>	L2
36.	<p>Which of the following metal is preferred for manufacturing micro electrodes?</p> <p>a) Stainless steel  <b>b) Tungsten</b>          c) Iron          d) Copper</p>	L1
37.	<p>Phonocardiography is listening to _____</p> <p>a) arm muscle sound          b) lungs sound  <b>c) heart sound</b>          d) respiratory tract sound</p>	L2

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38.	Which electrode can be used to pick up signals from individual fibers of muscle tissues? a) bipolar needle electrode b) concentric core needle electrode c) <b>multi-element needle electrode</b> d) monopolar needle electrode	L2
39.	Glass micro-capillaries are a type of micro electrode. a) <b>True</b> b) False	L1
40.	When intramuscular EMG is required to look into the electrical activities of deeper or overlaid muscles, _____ electrodes are used. a) plate shape electrodes b) surface electrodes c) thin thread electrodes d) <b>fine wire electrodes</b>	L5
41.	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
42.	Electrodes to measure EEG are placed on _____ a) forehead b) <b>scalp</b> c) cheek d) ears	L2
43.	Which type of electrodes are employed to study the electrical activities of individual cells? a) milli-electrodes b) <b>micro-electrodes</b> c) surface-electrodes d) pre-jelled electrodes	L1
44.	Glass microcapillaries are preferred over metallic electrodes because of the former _____ a) polarizes with input current b) does not have sustainable current carrying capacity c) has less contact surface area d) <b>has sustainable current carrying capacity</b>	L2
45.	_____ are devices which convert one form of energy into another. a) <b>transducers</b> b) electrodes c) impulses d) opamp	L3