

# MEDICAL ELECTRONICS

## ASSESSMENT 2 - ANSWER KEY

1. What surgical functions are performed by the diathermy machine?

1 / 1 pt  
*Auto-graded*

cutting, coagulation, fulguration ✓

cutting, fulguration

cutting, coagulation

coagulation, fulguration

2. The types of therapeutic diathermy machines that exist are \_\_\_\_\_

1 / 1 pt  
*Auto-graded*

Short wave, micro wave and ultrasound ✓

Short wave, ultrasound and cold compress

Cold compress, microwave and electrical impulse

Electrical impulse, microwave and ultrasound

3. Which of the following amplifier is commonly used for providing protection against leakage currents?

1 / 1 pt  
*Auto-graded*

Isolation amplifiers ✓

Instrumentational amplifiers

Inverting amplifiers

Differential amplifiers

4. In \_\_\_\_\_ diathermy, the electrodes does not come in contact with the patient's body

1 / 1 pt  
Auto-graded

Capacitive SWD

Inductive SWD

Microwave ✓

ultrasonic

5. The other name of half-cell potential is known as \_\_\_\_\_

1 / 1 pt  
Auto-graded

Action potential

Resting potential

membrane potential

Electrode potential ✓

6. \_\_\_\_\_ electrode is used to pick a signal from a nerve

1 / 1 pt  
Auto-graded

macro

Skin Surface

micro

needle ✓

7. Which electrode is also known as the chest electrode?

1 / 1 pt  
Auto-graded

Suction cup ✓

Floating

Metal Plate

Metal Disk

8. In the electrode-electrolyte interface, complete this equation,  $A^m + e^- =$

1 / 1 pt  
Auto-graded

- $A + me^-$  ✓
- $ne^-$
- $A + ne^-$
- $C + ne^-$

9. The nominal R-wave voltage from Lead - II is

1 / 1 pt  
Auto-graded

- 0.53mV (0.07 - 1.13 )mV
- 0.38 mV (0.03 - 1.31 )mV
- 0.71 mv (0.18 - 1.68)mV ✓
- 0.46 mV (0.3 - 1.2) mV

10. Theta waves are produced from \_\_\_\_\_ region of the brain

1 / 1 pt  
Auto-graded

- Frontal
- Temporal ✓
- Parietal
- Occipital

11. \_\_\_\_\_ Brain waves are produced when a person is doing Yoga

1 / 1 pt  
Auto-graded

- Alpha ✓
- Beta
- Gamma
- Theta

12. In EEG Recorder, Patient cable consists of \_\_\_\_\_ electrodes

1 / 1 pt  
Auto-graded

- 21 ✓
- 19
- 25
- 23

13. The technique used to record the sounds and murmurs produced by the heart is called as \_\_\_\_\_

1 / 1 pt  
Auto-graded

- Electrocardiograph
- Phonocardiogram
- Phonocardiograph
- Phonocardiography ✓

14. Which location gives the least accurate temperature?

1 / 1 pt  
Auto-graded

- rectum
- under tongue
- under armpit ✓
- inside ear

15. The instrument used to measure the intensity of transmitted light through the color solution is \_\_\_\_\_

1 / 1 pt  
Auto-graded

- colorimeter ✓
- colorimetry
- sphygmomanometer
- kymomanometer

16. Violet color has a \_\_\_\_\_ wavelength

1 / 1 pt  
Auto-graded

- 404.7 nm ✓
- 589 nm
- 670.8 nm
- 550 nm

17. \_\_\_\_\_ membrane allows only oxygen molecules to pass through it

1 / 1 pt  
Auto-graded

- Glass
- Polypropylene ✓
- Teflon
- Rubber

18. pH value is controlled by \_\_\_\_\_

1 / 1 pt  
Auto-graded

- lungs
- kidneys
- Both lungs & kidneys ✓
- None of the above

19. The transmittance of a distilled water is

1 / 1 pt  
Auto-graded

- 0.5
- 1 ✓
- 1.5
- 2.0

20. The principle of colorimeter is

1 / 1 pt  
Auto-graded

- Beer's Law
- Lambert's Law
- Beer's and Lambert's Law ✓
- Intensity of transmitted light

21. The conduction velocity is given by

2 / 2 pts  
Auto-graded

- $V = (I_2 - I_1) / (t_2 - t_1)$
- $V = (I_1 - I_2) / (t_1 - t_2)$  ✓
- $V = (t_2 - t_1) / (I_2 - I_1)$
- $V = (t_1 - t_2) / (I_1 - I_2)$

22. If the pCO<sub>2</sub> value decreases, the body is said to be \_\_\_\_\_  
and if the pCO<sub>2</sub> increases, the body is said to be

2 / 2 pts  
Auto-graded

- \_\_\_\_\_
- acidosis, alkalosis
- alkalosis, acidosis ✓
- alkalosis, basic
- acidosis, acidity

23. First heart sound is heard due to closure of \_\_\_\_\_ valve

2 / 2 pts  
Auto-graded

- Pulmonary
- Mitral
- Tricuspid
- Bicuspid & Tricuspid ✓

24. Each cell contains \_\_\_\_\_ inside the cell and \_\_\_\_\_ outside the cell

2 / 2 pts  
Auto-graded

ICF , ECF ✓

ECF, ICF

Anions, Cations

ions, Proteins

25. In EEG electrode placement, the odd numbered electrodes are placed on \_\_\_\_\_ side and even numbered electrodes are placed on \_\_\_\_\_ side.

2 / 2 pts  
Auto-graded

Right, Right

Left, Left

Left, Right ✓

Right, Left

26. The voltage-gated sodium channels open only if the membrane potential reaches \_\_\_\_\_V and The voltage-gated Pottasium channels open only if the membrane potential reaches \_\_\_\_\_V

2 / 2 pts  
Auto-graded

+20mV , -55mV

-55mV, +20mV ✓

-60mV, +30mV

+30mV, -60mV

27. The relation between transmittance and absorbance is given by,

2 / 2 pts  
Auto-graded

$A = \log(1/T)$

$A = -\log(I/I_0)$

$A = -\log(T)$

All of the above ✓

28. In Bipolar Limb Lead system, Lead II is obtained between positive electrode on \_\_\_\_\_ and negative electrode on \_\_\_\_\_

2 / 2 pts  
Auto-graded

Left foot, Right arm ✓

Left foot, Left arm

Right arm, Left foot

Right arm, Left arm

29. By KVL, the voltage developed from the Einthoven triangle is given by

2 / 2 pts  
Auto-graded

$V_2 = V_3 + V_1$  ✓

$V_1 = V_2 + V_3$

$V_3 = V_1 + V_2$

$V_3 = V_2 - V_1$

30. If the pH value exceeds 7.45, the body is considered to be in a state of \_\_\_\_\_ and if the pH value decreases below 7.35, the body is considered to be in a state of \_\_\_\_\_

2 / 2 pts  
Auto-graded

acidosis, alkalosis

alkalosis, acidosis ✓

alkalosis, basic

acidosis, acidity

31. During sodium pumping action, \_\_\_\_\_ ions are pumped out of cell and \_\_\_\_\_ ions are pumped into the cell.

2 / 2 pts  
Auto-graded

3 Na<sup>+</sup>, 3K<sup>+</sup>

2K<sup>+</sup>, 3 Na<sup>+</sup>

3 Na<sup>+</sup>, 2K<sup>+</sup> ✓

Na<sup>+</sup>, K<sup>+</sup>



32. In \_\_\_\_\_ reaction, electrons are released and in \_\_\_\_\_ reaction electrons are gained

2 / 2 pts  
Auto-graded

- Oxidation, Reduction ✓
- Reduction, Reduction
- Oxidation, Oxidation
- Reduction, Oxidation

33. Beer's and Lambert's Law states

2 / 2 pts  
Auto-graded

- $A = KC$
- $A = KL$
- $A = KCL$  ✓
- $A = CL$

34. The normal pH value in an adult is

2 / 2 pts  
Auto-graded

- 7.15 to 7.25
- 7.25 to 7.35
- 7.35 to 7.45 ✓
- 7.45 to 7.55

35. 12 Lead system refers to \_\_\_\_\_ recording and 10-20 electrode placement is followed in \_\_\_\_\_ recording

2 / 2 pts  
Auto-graded

- ECG , EEG ✓
- ERG, EEG
- EMG, ECG
- EEG, ECG