

MEDICAL ELECTRONICS

ASSIGNMENT 8 - ANSWER KEY

1. Blood cell counters, operating on the principle of conductivity change, which occurs each time a cell passes through an orifice, are generally known as

1 / 1 pt
Auto-graded

optical method

electrical conductivity

coulter Counter ✓

microscopic method

2. Which of the following information is not provided by the Coulter Counter?

1 / 1 pt
Auto-graded

Relative cell size distribution

Settings of the threshold level control

Relative cell size

Mean cell volume ✓

3. In Coulter counter, for such an aperture, a length of about _____ and flow rate of _____ ml/s would be optimum.

1 / 1 pt
Auto-graded

100 μ , 0.04

200 μ , 0.02

100 μ , 0.02

200 μ , 0.04 ✓

4. What gives blood its color?

1 / 1 pt
Auto-graded

B-cells

White blood cells

Red blood cells ✓

T-cells

5. What does hemoglobin do?

1 / 1 pt
Auto-graded

Bring in sucrose to our body

Bring in sodium to our body

Remove oxygen from our body

Move oxygen throughout the body ✓

6. How can you describe the shape of a red blood cell?

1 / 1 pt
Auto-graded

Thick disk

A long disk

A flat disk ✓

A square disk

7. What is the main job of leukocytes?

1 / 1 pt
Auto-graded

To help move blood around our body

To help us digest food

To protect us from harmful pathogens ✓

To help our body heal if we get cut

8. Which of the following best describes platelets?

1 / 1 pt
Auto-graded

Cells in the blood that fight infection

Cells in the blood that carry oxygen

Cells in the blood that form clots ✓

Cells in the blood that make fibers

9. Which of the following physiological parameter is most difficult to measure accurately?

1 / 1 pt
Auto-graded

Blood pressure

Blood Flow ✓

Blood Volume

Skin color

10. Which of the following instrument is most commonly used for measurement of blood flow?

1 / 1 pt
Auto-graded

NMR Blood Flowmeter

Ultrasonic Blood Flowmeter

Electromagnetic Blood Flowmeter ✓

Laser Doppler Blood Flowmeter

11. The induced emf is picked by point electrodes made from _____ in an electromagnetic blood flowmeter

1 / 1 pt
Auto-graded

copper

graphite

platinum ✓

copper tungsten

12. The average flow velocity appears to be _____ cm/s in arteries

1 / 1 pt
Auto-graded

5 to 10

10 to 12

12 to 18

20 to 25 ✓

13. What is the average flow velocity in veins?

1 / 1 pt
Auto-graded

5 to 10 cm/s

b) 10 to 12 cm/s ✓

c) 12 to 18 cm/s

d) 20 to 25 cm/s

14. Which of the following instrument is used to measure blood flow in the skin?

1 / 1 pt
Auto-graded

NMR Blood Flowmeter

Ultrasonic Blood Flowmeter

Electromagnetic Blood Flowmeter

Laser Doppler Blood Flowmeter ✓

15. Which laser is used in Laser doppler blood flowmeter?

1 / 1 pt
Auto-graded

Nd-YAG

Argon

He-Ne ✓

CO₂

16. Which of the following is the most common substance for analysis from the body?

1 / 1 pt
Auto-graded

CSF

Urine

Blood ✓

Glucose

17. ____ accounts for 60% of blood volume

1 / 1 pt
Auto-graded

- Blood cells
- Water
- Carbon Dioxide

Blood plasma ✓

18. ____ accounts for 40% of the blood volume.

1 / 1 pt
Auto-graded

Blood cells ✓

- Water
- Carbon Dioxide
- Blood plasma

19. How is cardiac output calculated?

1 / 1 pt
Auto-graded

By multiplying the heart rate by the stroke volume. ✓

- By adding together the heartbeats per minute and the volume of blood pumped out.
- By dividing the stroke volume by the heart rate.
- By subtracting the amount of blood being pumped out from the number of heartbeats per minute.

20. An individual's number of heart beats per minute is known as ____, while the volume of blood that is pumped by his ventricles with each heartbeat is ____.

1 / 1 pt
Auto-graded

- heart rate; blood pressure
- blood pressure; strength of ventricular contraction

heart rate; stroke volume ✓

stroke volume; pulse

21. A pulse can be measured by _____

1 / 1 pt
Auto-graded

- using a stethoscope to listen to the heart
- using the fingers to feel an artery near the skin ✓
- using a microscope to see how far artery walls stretch
- using a thermometer to test the temperature of the blood

22. Heart rate is measure of _____.

1 / 1 pt
Auto-graded

- how many times the heart beats in one minute ✓
- how many arteries blood passes through in one minute
- how far away from the heart blood travels in one minute
- how many veins blood passes through in one minute

23. A pulse is _____

1 / 1 pt
Auto-graded

- the movement of the lungs when you breathe
- the churning of your stomach to digest food
- the throbbing of arteries as blood moves through them ✓
- the contraction of your muscles when you move heavy objects

24. Respiration results in _____

1 / 1 pt
Auto-graded

- Release of oxygen
- Anabolism
- Release of carbon dioxide ✓
- Transfer of carbon dioxide

25. Respiration is controlled by _____

1 / 1 pt
Auto-graded

- Cerebrum
- Cerebellum
- Medulla oblongata ✓
- Hypothalamus

26. The majority of carbon dioxide produced by the body is transported to lungs _____

1 / 1 pt
Auto-graded

Dissolved in blood

As carbonates ✓

As bicarbonates

Attached to hemoglobin

27. During inspiration the diaphragm _____

1 / 1 pt
Auto-graded

Expands

Contracts ✓

No change

Relaxes

28. Which of the following does not belong to conducting portion of the respiratory system?

1 / 1 pt
Auto-graded

Nose

Pharynx

Alveoli ✓

Bronchioles

29. The site of respiration inside the lungs are _____

1 / 1 pt
Auto-graded

Alveoli ✓

Diaphragm

Bronchi

Bronchioles

30. What is the function of trachea?

1 / 1 pt
Auto-graded

- Filters air we breathe ✓
- Releases air out of the body
- Carries air to lungs
- Exchange of gas

31. The trachea leads to the _____

1 / 1 pt
Auto-graded

- Pulmonary vessels
- Esophagus
- Bronchi ✓
- Bronchioles

32. How much percent of CO₂ is expired?

1 / 1 pt
Auto-graded

- 7%
- 32% ✓
- 25%
- 20%

33. When CO₂ concentration in blood increased breathing becomes _____

1 / 1 pt
Auto-graded

- shallower and deeper
- slow and deep
- faster and deeper ✓
- no effect on breathing

34. Oxygen is carried by _____

1 / 1 pt
Auto-graded

Platelets

Leucocytes

Erythrocytes ✓

Monocytes

35. After deep inspiration maximum expiration of lungs is called _____

1 / 1 pt
Auto-graded

Vital capacity ✓

Total lung capacity

Inspiratory capacity

Functional residual capacity

36. Partial pressure of oxygen in lungs is _____

1 / 1 pt
Auto-graded

60 mm Hg

40 mm Hg

110 mm Hg

100 mm Hg ✓

37. Amount of CO₂ in expired air is _____

1 / 1 pt
Auto-graded

0.04%

0.03%

3.6% ✓

21%

38. Total lung capacity is _____

1 / 1 pt
Auto-graded

- 5000-6000ml ✓
- 2500-5000ml
- 4000-5500ml
- 3000-6000ml

39. Maximum amount of oxygen is exchanged from blood in _____

1 / 1 pt
Auto-graded

- Arteries of the body ✓
- Capillaries surrounding the alveoli
- Left auricle of the heart

40. Residual volume is _____

1 / 1 pt
Auto-graded

- Lesser than tidal volume
- Greater than vital capacity
- Greater than inspiratory volume
- Greater than tidal volume ✓

41. Oxygen is mainly transported as _____

1 / 1 pt
Auto-graded

- Oxyhemoglobin ✓
- Hemo-oxyglobin
- Hemoglobin
- Oxynoglobin

42. The urge to inhale in humans results from _____

1 / 1 pt
Auto-graded

- Rising Pco2 ✓
- Rising O2
- Falling PCO2
- Falling PO2

43. Lack of oxygen to the brain can make the person feel

1 / 1 pt
Auto-graded

hyperactive

sleepy ✓

depressed

gasping for air

44. Oxygen diffuses out of blood into tissues because

1 / 1 pt
Auto-graded

Oxygen concentration of tissue fluid is lower ✓

Oxygen concentration of blood is lower

Carbon dioxide concentration of tissue fluid is lower

Carbon dioxide concentration of tissue fluid is higherOption 1

45. What do you mean by cardiac output?

1 / 1 pt
Auto-graded

the volume of blood received in atrium

the volume of blood received in ventricles

the volume of blood ejected from atrium to the ventricles

the volume of blood ejected from ventricles to the aorta and pulmonary artery ✓

46. Complete the following sentence "the more volume of blood enters during diastole, _____"

1 / 1 pt
Auto-graded

More blood is ejected during next diastole

more blood is received during next systole

more blood is ejected during next systole ✓

more blood is received during next diastole

47. Which of the following is the correct formula for cardiac output?

1 / 1 pt
Auto-graded

stroke volume/ heart rate

stroke volume*resistance

heart rate / resistance

none of the above



48. _____ instrument is used to count blood cell

1 / 1 pt
Auto-graded

Coulter counter

aperture cell counter

Flow cytometry counter

All of the above



49. Blood is responsible for carrying

1 / 1 pt
Auto-graded

oxygen, carbondioxide

Nutrients from digestive tract

Hormones from endocrine organs

All of the above



50. Plethysmograph transducer consists of _____

1 / 1 pt
Auto-graded

LED

Infrared Emitting diode

Photo transistor

Infrared emitting diode and photo transistor

