

MULTIPLE CHOICE

HEMODYNAMICS - PRACTICE SET - ANSWER KEY

PROPOSED FOR REVIEW - questions are the author's verbatim Q&A; distractors are auto-selected from other answers in the same bank and must be checked by a subject-matter reviewer (a distractor could coincidentally be correct). Not authoritative assessment content.

1. What are the two forms of laminar flow?

- A. Eddy and vortex flow
- B. Frictional and inertial flow
- C. Pulsatile and phasic flow
- D. Plug and parabolic flow**

2. What muscle is responsible for breathing?

- A. Intercostal artery
- B. Diaphragm**
- C. Aortic valve
- D. Carotid sinus

3. What type of flow occurs when blood moves at a variable velocity and is commonly seen in arterial circulation?

- A. Pulsatile flow**
- B. Steady flow
- C. Plug flow
- D. Phasic flow

4. How much kinetic energy do heavy objects moving quickly have?

- A. No kinetic energy
- B. A lot of kinetic energy**
- C. Only gravitational energy
- D. A little kinetic energy

5. What type of flow occurs when layers of blood travel at individual speeds?

- A. Laminar flow**
- B. Stagnant flow
- C. Aliased flow
- D. Turbulent flow

6. What term is used for pressure related to the weight of blood pressing on a vessel wall?

- A. Stagnation pressure
- B. Dynamic pressure
- C. Transmural pressure
- D. Hydrostatic pressure**

7. Does resistance have the same name in an electrical system and a fluid system?

- A. No
- B. Yes**

8. When transmural pressure is low, how filled are veins?

- A. Collapsed with no lumen
- B. Completely filled
- C. Partially filled**
- D. Overdistended

9. During expiration, does venous flow in the legs increase or decrease?

- A. Decrease

- B. Increase**
- C. Remain unchanged
- D. Reverse direction

10. When does inertial energy loss occur?

A. Pulsatile flow, phasic flow, and velocity changes

- B. Only during scan conversion
- C. Only steady flow at constant velocity
- D. Only when viscosity becomes zero

11. What is Reynolds number for turbulent flow?

- A. Less than 1,500
- B. Greater than 2,300**
- C. Exactly 1
- D. Between 10 and 100

12. What type of flow occurs when a fluid moves at a constant velocity?

- A. Phasic flow
- B. Pulsatile flow
- C. Steady flow**
- D. Turbulent flow

13. What is the shape of a vein if the transmural pressure is high?

- A. Dumbbell shaped
- B. Round**
- C. Collapsed
- D. Flat and slitlike

14. What are the units for flow?

A. Any volume divided by time, such as liters/min

- B. Any distance divided by time, such as cm/s
- C. Any frequency divided by time, such as Hz/s
- D. Any pressure divided by area, such as mmHg/cm²

15. What term is used to describe the narrowing of the lumen in a vessel?

- A. Thrill
- B. Hematocrit
- C. Aneurysm
- D. Stenosis**

16. In the electrical analogy, pressure in a fluid system is called what?

A. Voltage in an electrical system

- B. Power in an electrical system
- C. Resistance in an electrical system
- D. Current in an electrical system

17. What is the study of blood moving within the circulatory system?

- A. Sonolucency
- B. Hemodynamics**
- C. Hydrostatics
- D. Hemostasis

18. During expiration, does flow in the vena cava increase or decrease?

- A. Remain unchanged
- B. Increase
- C. Decrease**
- D. Become pulsatile only

19. Compared with a smaller object moving at the same speed, how much kinetic energy does an object with greater mass have?

- A. Less kinetic energy
- B. More kinetic energy**
- C. The same kinetic energy

D. No kinetic energy

20. What are the forms of energy associated with blood?

A. Plug, parabolic, and turbulent energy

B. Pressure, kinetic, and gravitational energy

C. Viscous, frictional, and inertial energy

D. Thermal, acoustic, and optical energy

21. What type of flow is seen in venous circulation when someone stops breathing for a few seconds?

A. Phasic flow

B. Pulsatile flow

C. Post-stenotic flow

D. Steady flow

22. What describes the thickness of fluid?

A. Viscosity

B. Velocity

C. Hematocrit

D. Pressure gradient

23. During inspiration, does flow in the vena cava increase or decrease?

A. Increase

B. Become turbulent only

C. Decrease

D. Remain unchanged

24. What indicates the volume of blood during a particular time?

A. Resistance

B. Pressure energy

C. Velocity

D. Flow or volume flow rate

25. When a patient is standing, where is hydrostatic pressure positive?

A. At the level of the heart

B. Locations below the heart

C. At the head

D. Locations above the heart