

# CHAPTER 05

1. The amount of mass in a system is constant. True or False

**A. True**

**B. False**

2. The \_\_\_\_ is the control volume expression for the conservation of mass.

**YOUR ANSWER: continuity equation**

3. If density is known, the volume flowrate can be used to find the mass flowrate. True or False.

**A. True**

**B. False**

4. According to the sign convention, mass flowrate out of the control volume is negative and the mass flowrate in is positive. True or False

**A. True**

**B. False**

5. What is the sign convention when the mass of the contents of the control volume is decreasing?

**A. +**

**B. -**

**C. mass cannot change**

6. When the flow is steady the assumption can be made that the mass flow in is equal to the mass flow out. True or False

**A. True**

**B. False**

7. The velocity of the surface of a deforming control volume is \_\_\_\_ at all points.

**YOUR ANSWER: not the same**

8. Newton's second law deals with \_\_\_\_ momentum and forces.

**A. system**

**B. control volume**

C.control surface

9.A fixed coordinate system is non-inertial. True or False

A.True

**B.False**

10.When landing an aircraft, where does the major breaking force come from?

**YOUR ANSWER: The engine**

11.When the flow is uniformly distributed over a section of the control surface where flow occurs the integral operations are simplified. True or False

**A.True**

B.False

12.If the control surface is selected perpendicular to the flow, then the surface forces outside the control volume acting on the fluid inside will be due to:

A.velocity

B.gravity

**C.pressure**

13.The linear momentum equation for a moving control volume will involve the relative velocity. True or False.

**A.True**

B.False

14.Which of the following was an example of a turbomachine given in the book?

**A.ceiling fan**

B.car wheel

C.garden hose

15.For applications of the Moment-of-Momentum equation, the flows are considered to be three dimensional. True or False

A.True

**B.False**

16.The symbol for the total stored energy per unit mass for each particle in the system is

represented by the symbol \_\_\_\_.

**A.e**

B.h

C.s

17.The energy equation involves stored energy, heat transfer, and what else?

A.velocity

B.pressure

**C.work**

18.What represents all of the ways in which energy is exchanged between the control volume contents and surrounding because of temperature difference?

**YOUR ANSWER: The heat transfer rate**

19.Work is transferred by rotating shafts, normal stresses, and tangential stresses. True or False

**A.True**

B.False

20.If shaft work is involved then the local flow must be\_\_\_\_.

A.steady

B.turbulent

**C.unsteady**

21.If the steady, incompressible flow being considered also involves negligible viscous effects, the \_\_\_\_ equation can be used.

**YOUR ANSWER: Bernoulli**

22.Units of \_\_\_\_ are used to quantify the amount of head involved.

**A.length**

B.mass

C.force

23.The second law of thermodynamics formalizes the notion of \_\_\_\_.

**YOUR ANSWER: Loss**

24. Entropy per unit mass is expressed by which symbol?

A.a

**B.s**

C.h

25. The relationship between entropy and heat transfer rate depends on the process involved. True or False

**A.True**

B.False

26. The Bernoulli equation can be derived from the energy equation. True or False.

**A.True**

B.False