

Mechanical Engineering Fundamentals

Mechanical Engineering · Answer Key · 10 Questions

1. Which law of thermodynamics states that the entropy of an isolated system always increases over time?

- A) Zeroth Law
- B) First Law
- C) Second Law**
- D) Third Law

2. What is the primary alloying element used in the production of stainless steel to provide corrosion resistance?

- A) Chromium**
- B) Carbon
- C) Nickel
- D) Manganese

3. In fluid mechanics, what does the Reynolds number represent the ratio of?

- A) Pressure to Viscosity
- B) Inertial forces to Viscous forces**
- C) Density to Velocity
- D) Gravity to Surface Tension

4. Which mechanical component is specifically designed to convert rotary motion into linear motion?

- A) Ball bearing
- B) Universal joint
- C) Lead screw**
- D) Flywheel

5. What is the unit of measurement for torque in the International System of Units (SI)?

- A) Joule
- B) Watt
- C) Newton-meter**
- D) Pascal

6. Which material property describes the ability of a material to be deformed under tensile stress without fracture?

- A) Hardness
- B) Ductility**
- C) Brittleness
- D) Elasticity

7. What is the purpose of a heat exchanger in a mechanical system?

- A) To increase pressure
- B) To transfer thermal energy between fluids**
- C) To convert heat directly to electricity
- D) To measure temperature

8. Which type of gear is used to connect two shafts that are at an angle to each other?

- A) Spur gear
- B) Bevel gear**
- C) Helical gear
- D) Worm gear

9. What is the Young's modulus of a material a measure of?

- A) Density
- B) Thermal conductivity
- C) Stiffness**
- D) Hardness

10. Which cycle is the theoretical ideal cycle for a spark-ignition internal combustion engine?

- A) Rankine cycle
- B) Otto cycle**
- C) Diesel cycle
- D) Brayton cycle