UNIT-IISteam Nozzles

Fill in the Blanks

1. A steam nozzle is a device used to convert _____ energy into kinetic energy.
   Answer: Pressure
2. The velocity of steam increases as it passes through a _____.
   Answer: Nozzle
3. In a convergent nozzle, the cross-sectional area _____ in the direction of flow.
   Answer: Decreases
4. A nozzle operates on the principle of conservation of _____.
   Answer: Energy
5. The pressure of steam _____ as it flows through a nozzle.
   Answer: Decreases
6. A convergent-divergent nozzle is also called a _____ nozzle.
   Answer: De Laval
7. The throat of a nozzle is the section having _____ area.
   Answer: Minimum
8. The ratio of actual discharge to theoretical discharge is called the coefficient of _____.
   Answer: Discharge
9. The efficiency of a nozzle is known as _____ efficiency.
   Answer: Nozzle
10. Steam expands through a nozzle with a drop in pressure and increase in _____.
    Answer: Velocity

Multiple Choice Questions (10)

1. The primary function of a steam nozzle is to:
   - A) Increase pressure
   - B) Convert pressure energy into kinetic energy
   - C) Condense steam
   - D) Generate electricity

Answer: B) Convert pressure energy into kinetic energy

2. In a nozzle, steam pressure:
   - A) Increases
   - B) Remains constant
   - C) Decreases
   - D) Becomes zero

Answer: C) Decreases

3. Which nozzle is used for supersonic steam flow?
   - A) Convergent nozzle
   - B) Divergent nozzle
   - C) Convergent-divergent nozzle
   - D) Parallel nozzle

Answer: C) Convergent-divergent nozzle

4. The minimum area section of a nozzle is called:

- A) Exit
- B) Inlet
- C) Throat
- D) Chamber

Answer: C) Throat

5. A De Laval nozzle consists of:

- A) Only convergent section
- B) Only divergent section
- C) Convergent and divergent sections
- D) Parallel section

Answer: C) Convergent and divergent sections

6.The velocity of steam at the nozzle exit is:

- A) Less than inlet velocity
- B) Equal to inlet velocity
- C) Greater than inlet velocity
- D) Zero

Answer: C) Greater than inlet velocity

7. Nozzle efficiency is the ratio of:

- A) Actual kinetic energy to theoretical kinetic energy
- B) Pressure to velocity
- C) Mass flow to volume flow
- D) Heat supplied to work done

Answer: A) Actual kinetic energy to theoretical kinetic energy

8. The flow through a nozzle is generally considered:

- A) Isothermal
- B) Adiabatic
- C) Constant volume
- D) Constant pressure

Answer: B) Adiabatic

9. Steam nozzles are mainly used in:

- A) Boilers
- B) Condensers
- C) Steam Turbines
- D) Cooling Towers

Answer: C) Steam Turbines

10The unit of steam velocity is:

- A) kg/s
- B) m/s
- C) N/m^2
- D) kJ/kg

Answer: B) m/s