1. A nozzle is said to be a convergent nozzle

   A. when the cross-section of the nozzle increases continuously from entrance to exit

   B. when the cross-section of the nozzle decreases continuously from entrance to exit

   C. when the cross-section of the nozzle first decreases from entrance to throat and then increases from its throat to exit

   D. none of the above

1. A nozzle is said to be a convergent nozzle

   A. when the cross-section of the nozzle increases continuously from entrance to exit

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   C. when the cross-section of the nozzle first decreases from entrance to throat and then increases from its throat to exit

   D. none of the above

2. A turbine is said to have an axial discharge when the steam leaves the blade tip at _____ to the direction of the blade motion.

   A. 60°

   B. 90°

   C. 180°

   D. 270°

3. The flow through a nozzle is regarded as

   A. constant volume flow

   B. constant pressure flow

   C. isothermal flow

   D. isentropic flow

4. The ratio of total useful heat drop to the total isentropic heat drop, is called

   A. stage efficiency

   B. internal efficiency

   C. Rankine efficiency

   D. none of these

5. The pressure at which the steam leaves the nozzle is known as back pressure.

   A. Correct

   B. Incorrect

6. The discharge of steam in a convergent-divergent nozzle _____ after the throat (i.e. in the divergent portion of the nozzle)

   A. remains constant

   B. decreases

   C. increases

7. The rate of discharge through the nozzle _____ when the exit pressure is gradually reduced.

A. remains same

B. decreases

C. increases

8. The velocity of steam leaving the nozzle (V) is given by (where K = Nozzle coefficient or nozzle efficiency, and h_d = Enthalpy or heat drop during expansion of steam in a nozzle)

A. $V = 44.72\ h_d\ \sqrt{K}$

B. $V = 44.72\ K\ \sqrt{h_d}$

C. $V = 44.72\ \sqrt{K\ h_d}$

D. $V = 44.72\ K\ h_d$

9. In a nozzle, whole frictional loss is assumed to occur between

A. inlet and thoroat

B. inlet and outlet

C. throat and exit

D. all of these

10. The critical pressure ratio for initially wet steam is

A. 0.546

B. 0.577

C. 0.582

D. 0.601

11. The isentropic enthalpy drop in moving blade is two-third of the isentropic enthalpy drop in fixed blades of a turbine. The degree of reaction will be

A. 0.4

B. 0.56

C. 0.67

D. 1.67

12. The impulse reaction turbine has its driving force

A. as an impulsive force

B. as a reaction force

C. partly as an impulsive force and partly as a reaction force

D. none of the above

13. The efficiency of reaction turbine is maximum when (where α = Angle made by the absolute velocity (V) at inlet)

A. $V_b = 0.5\ V \cos \alpha$

B. $V_b = V \cos \alpha$

C. $V_b = 0.5\ V^2 \cos \alpha$

D. $V_b = V^2 \cos \alpha$

14. A regenerative steam cycle renders

A. increased work output per unit mass of steam

B. decreased work output per unit mass of steam

C. increased thermal efficiency

D. decreased work output per unit mass of steam as well as increased thermal efficiency

15. De-Laval turbine is a

A. single rotor impulse turbine

B. multi-rotor impulse turbine

C. impulse reaction turbine

D. none of these

16. The turbine, in which the general direction of the steam flow is parallel to the turbine axis, is called axial flow turbines

A. True

B. False

17. The critical pressure gives the velocity of steam at the throat equal to the velocity of sound.

A. Agree

B. Disagree

18. The reheat factor is the ratio of the

A. cumulative heat drop to the isentropic heat drop

B. isentropic heat drop to the heat supplied

C. total useful heat drop to the total isentropic heat drop

D. none of the above

19. The turbine blades do not change the direction of steam issuing from the nozzle.

A. True

B. False

20. Thermal equilibrium means that the flow of steam is

A. isothermal

B. isentropic

C. hyperbolic

D. polytropic

21. When the back pressure of a nozzle is below the designed value of pressure at exit of nozzle, the nozzle is said to be

A. choked

B. underdamping

C. overdamping

D. none of these

22. The ratio of the workdone on the blades to the energy supplied to the blades, is called

A. blading efficiency

B. nozzle efficiency

C. gross or stage efficiency

D. mechanical efficiency

23. The discharge is _____ at critical pressure.

A. zero

B. minimum

C. maximum

24. The supersaturated flow of steam through a nozzle as compared to a stable flow, the available heat drop

A. remains the same

B. increases

C. decreases

D. is unpredictable

25. The steam leaves the nozzle at a

A. high pressure and a low velocity

B. high pressure and a high velocity

C. low pressure and a low velocity

D. low pressure and a high velocity

26. The critical pressure gives the velocity of steam at the throat

A. equal to the velocity of sound

B. less than the velocity of sound

C. more than the velocity of sound

D. none of these

27. The Parsons' reaction turbine has

A. only moving blades

B. only fixed blades

C. identical fixed and moving blades

D. fixed and moving blades of different shape

28. The action of steam in a steam turbine is

A. static

B. dynamic

C. static and dynamic

D. neither static nor dynamic

29. The blade velocity coefficient is ratio of relative velocity of steam at outlet tip of the blade to the relative velocity of steam at inlet tip of the blade.

A. True

B. False

30. Multi-stage steam turbines are of the

A. velocity compounded type

B. reaction type

C. pressure compounded type

D. all of these