

ENGINEERING ACADEMY DEHRADUN

www.engineeringacademy.co.in

MOB: 08449597123, 09411340612

Prep: Mr.Rahul Kothiyal

MECHANICAL TEST PAPER

15-04-2017

1. Which law states that the internal energy of a gas is a function of temperature

- (a) Charles' law (b) Joule's law
- (c) Regnault's law (d) Boyle's law
- (e) There is no such law.

2. Which law states that the specific heat of a gas remains constant at all temperatures and pressures

- (a) Charles' Law (b) Joule's Law
- (c) Regnault's Law (d) Boyle's Law
- (e) there is no such law.

3. The same volume of all gases would represent their

- (a) densities (b) specific weights
- (c) molecular weights
- (d) gas characteristic constants
- (e) specific gravities.

4. An open system is one in which

- (a) mass does not cross boundaries of the system, though energy may do so
- (b) neither mass nor energy crosses the boundaries of the system
- (c) both energy and mass cross the boundaries of the system
- (d) mass crosses the boundary but not the energy
- (e) thermodynamic reactions do not occur.

5. Gases have

- (a) only one value of specific heat
- (b) two values of specific heat
- (c) three values of specific heat
- (d) no value of specific heat
- (e) under some conditions one value and sometimes two values of specific heat.

6. According to which law, all perfect gases change in volume by 1/273th of their original volume at 0°C for every 1°C change in temperature when pressure remains constant

- (a) Joule's law (b) Boyle's law
- (c) Regnault's law (d) Gay-Lussac law
- (e) Charles' law.

7. According to Avogadro's Hypothesis

- (a) the molecular weights of all the perfect gases occupy the same volume under same conditions of pressure and temperature
- (b) the sum of partial pressure of mixture of two gases is sum of the two
- (c) product of the gas constant and the molecular weight of an ideal gas is constant
- (d) gases have two values of specific heat
- (e) all systems can be regarded as closed systems.

8. Work done in a free expansion process is

- (a) + ve (b) -ve
- (c) zero (d) maximum
- (e) minimum.

9. Extensive property of a system is one whose value

- (a) depends on the mass of the system like volume
- (b) does not depend on the mass of the system, like temperature, pressure, etc.
- (c) is not dependent on the path followed but on the state
- (d) is dependent on the path followed and not on the state
- (e) is always constant.

10. The statement that molecular weights of all gases occupy the same volume is known as

- (a) Avogadro's hypothesis
- (b) Dalton's law
- (c) Gas law
- (d) Law of thermodynamics
- (e) Joule's law.

11. If a gas is heated against a pressure, keeping the volume constant, then work done will be equal to

- (a) + v (b) - ve
- (c) zero (d) pressure x volume
- (e) any where between zero and infinity.

12. To convert volumetric analysis to gravimetric analysis, the relative volume of each constituent of the flue gases is

- (a) divided by its molecular weight
- (b) multiplied by its molecular weight
- (c) multiplied by its density
- (d) multiplied by its specific weight
- (e) divided by its specific weight.

13. Properties of substances like pressure, temperature and density, in thermodynamic coordinates are

- (a) path functions (b) point functions
- (c) cyclic functions (d) real functions
- (e) thermodynamic functions.

14. An isolated system is one in which

- (a) mass does not cross boundaries of the system, though energy may do so
- (b) neither mass nor energy crosses the boundaries of the system
- (c) both energy and mass cross the boundaries of the system
- (d) mass crosses the boundary but not the energy
- (e) thermodynamic reactions do not occur.

ENGINEERING ACADEMY DEHRADUN

www.engineeringacademy.co.in

MOB: 08449597123, 09411340612

Prep: Mr.Rahul Kothiyal

15. Which of the following quantities is not the property of the system

- (a) pressure
- (b) temperature
- (c) specific volume
- (d) heat
- (e) density.

16. Mixture of ice and water form a

- (a) closed system
- (b) open system
- (c) isolated system
- (d) heterogeneous system
- (e) thermodynamic system.

17. According to Avogadro's law, for a given pressure and temperature, each molecule of a gas

- (a) occupies volume proportional to its molecular weight
- (b) occupies volume proportional to its specific weight
- (c) occupies volume inversely proportional to its molecular weight
- (d) occupies volume inversely proportional to its specific weight
- (e) occupies same volume.

18. On weight basis, air contains following parts of oxygen

- (a) 21
- (b) 23
- (c) 25
- (d) 73
- (e) 79.

19. Which of the following is the property of a system

- (a) pressure and temperature
- (b) internal energy
- (c) volume and density
- (d) enthalpy and entropy
- (e) all of the above.

20. Which of the following is not the intensive property

- (a) pressure
- (b) temperature
- (c) density
- (d) heat
- (e) specific volume.

21. Which of the following items is not a path function

- (a) heat
- (b) work
- (c) kinetic energy
- (d) vdp
- (e) thermal conductivity.

22. Heat and work are

- (a) point functions
- (b) system properties
- (c) path functions
- (d) intensive properties
- (e) extensive properties.

23. Work done in an adiabatic process between a given pair of end states depends on

- (a) the end states only
- (b) particular adiabatic process
- (c) the value of index n

- (d) the value of heat transferred
- (e) mass of the system.

24. Which of the following parameters is constant for a mole for most of the gases at a given temperature and pressure

- (a) enthalpy
- (b) volume
- (c) mass
- (d) entropy
- (e) specific volume.

25. A perfect gas at 27°C is heated at constant pressure till its volume is double. The final temperature is

- (a) 54°C
- (b) 327°C
- (c) 108°C
- (d) 654°C
- (e) 600°C

26. The value of $n = 1$ in the polytropic process indicates it to be

- (a) reversible process
- (b) isothermal process
- (c) adiabatic process
- (d) irreversible process
- (e) free expansion process.

27. Solids and liquids have

- (a) one value of specific heat
- (b) two values of specific heat
- (c) three values of specific heat
- (d) no value of specific heat
- (e) one value under some conditions and two values under other conditions.

28. If value of n is infinitely large in a polytropic process $pV^n = C$, then the process is known as constant

- (a) volume
- (b) pressure
- (c) temperature
- (d) enthalpy
- (e) entropy.

29. The index of compression n tends to reach ratio of specific heats γ when

- (a) flow is uniform and steady
- (b) process is isentropic
- (c) process is isothermal
- (d) process is isentropic and specific heat does not

change with temperature

- (e) process is isentropic and specific heat changes with temperature.

30. The term N.T.P. stands for

- (a) nominal temperature and pressure
- (b) natural temperature and pressure
- (c) normal temperature and pressure
- (d) normal thermodynamic practice
- (e) normal thermodynamic pressure.

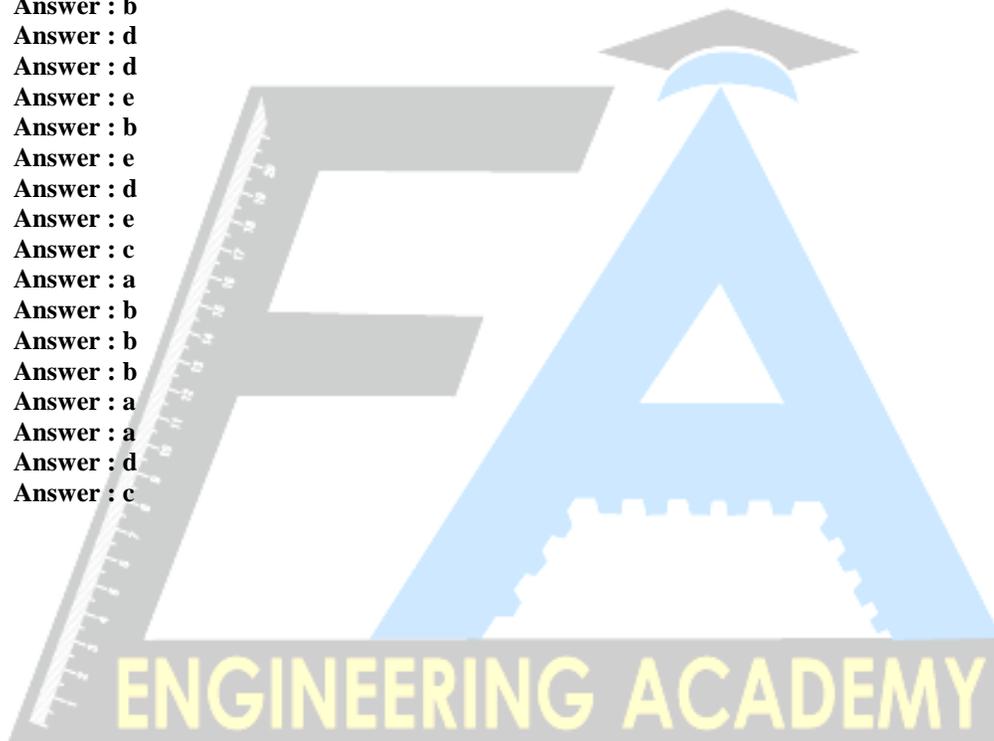
ENGINEERING ACADEMY DEHRADUN

www.engineeringacademy.co.in

MOB: 08449597123, 09411340612

Prep: Mr.Rahul Kothiyal

1. Answer : b
2. Answer : c
3. Answer : c
4. Answer : c
5. Answer : b
6. Answer : e
7. Answer : a
8. Answer : c
9. Answer : a
10. Answer : a
11. Answer : c
12. Answer : b
13. Answer : b
14. Answer : b
15. Answer : d
16. Answer : d
17. Answer : e
18. Answer : b
19. Answer : e
20. Answer : d
21. Answer : e
22. Answer : c
23. Answer : a
24. Answer : b
25. Answer : b
26. Answer : b
27. Answer : a
28. Answer : a
29. Answer : d
30. Answer : c



Join and Become Future Engineer