Solution of Questions For Short Answer

Chapter 27 Specific Heat Capacities of gases

Ans.1.

Gas have two specific heats, specific heat due to volume and specific heat due to pressure.

Ans.2.

We cannot define specific heat at constant temperature.

As there must be change in temperature.

Ans.3.

As in adiabatic process there is no heat exchanged thus specific heat capacity is zero.

Ans.4.

Yes solid also have only constant pressure molar specific heat capacities.

So there is no molar specific heat at constant volume.

Ans.5.

For ideal gas Cp-Cv=nr so CP-Cv>R

Ans.6.

No,

In a system either temperature varies or it heat varies.

In case of ideal gas Internal energy is function of temperature only thus for isothermal process change in internal energy is zero

Now, since process is adiabatic thus heat exchange is zero

therefore, work done is also zero

Ans.7.

As in isothermal PV is directly proportional to 1

In adiabatic process, PV^y is directly proportional to 1

As in adiabatic process pressure varies the volume varies as its powers w.r.t pressure so it decreases with more slope

Http://physics.info/pressure-volume/

Ans.8.

As PV directly proportional to constant in isothermal process.

Thus volume varies slowly w.r.t pressure

As in adiabatic process the volume decreases as PV^y directly proportional to constant.

So isothermal process is slow process and adiabatic process is fast process.

Ans.9.

Yea we can connect two process one after another as it is explained in carnot cycle.\

First we let gas expand as isothermal process then insulate it and make it adiabatic process.