

EFFICIENT AND CONTINUOUS
SAFE USE OF INDIRECT HOT
WATER SYSTEM



2007 Higher Level

Question 8

- a) Using notes and a single-line diagram, show a typical layout of an oil-fired central heating and hot water system for a two storey dwelling house. Show 3 radiators on each floor, indicate the necessary valves and give typical sizes of the pipework.
- b) On the diagram, show **two** features that ensure the safe functioning of the heating system.
- c) Using **notes and freehand sketches**, show **two** details that should be incorporated into the design of the central heating system to ensure the economical use of oil.

Question 8

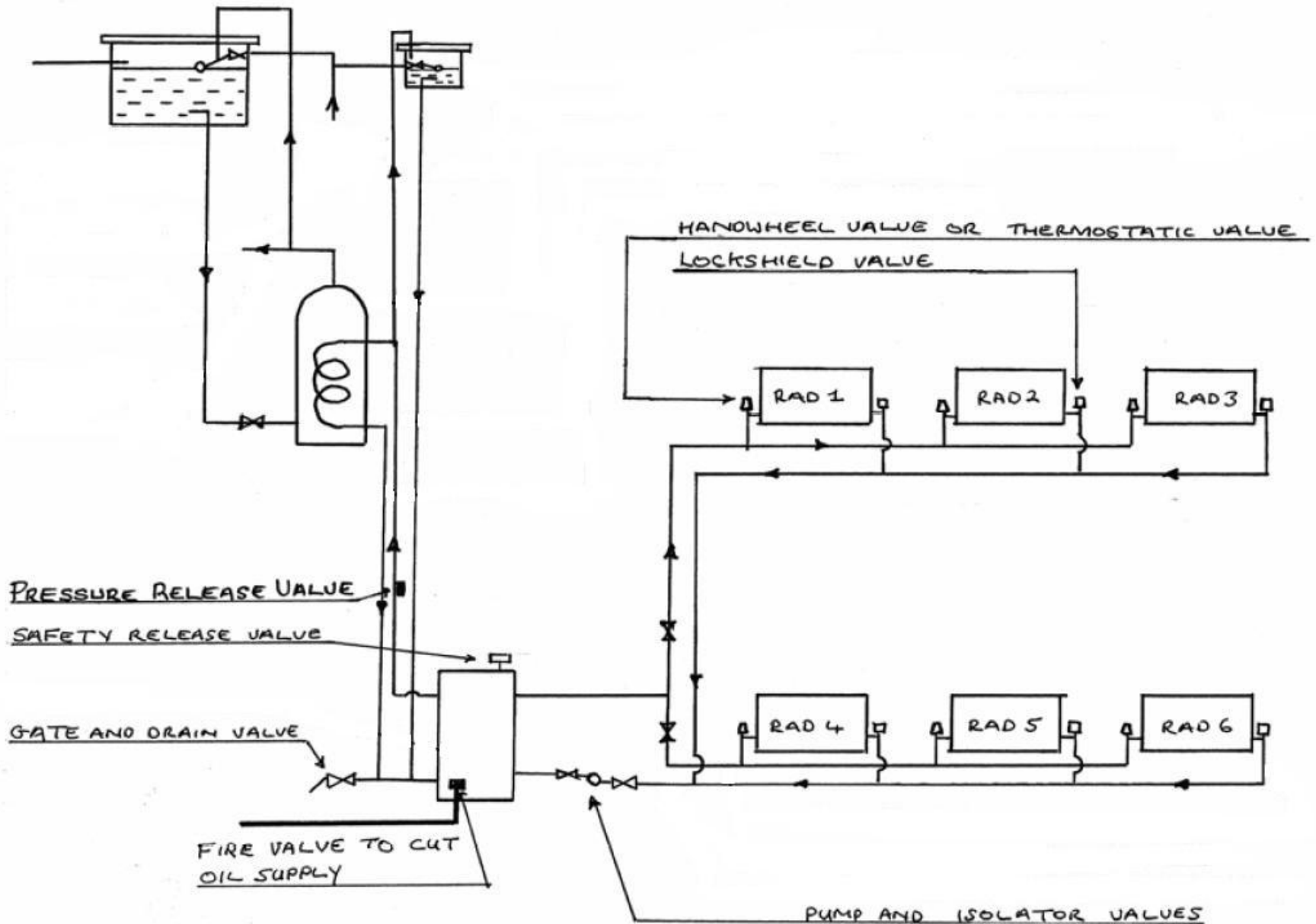
- a) Using notes and a single-line diagram, show a typical layout of an oil-fired central heating and hot water system for a two storey dwelling house. Show 3 radiators on each floor, indicate the necessary valves and give typical sizes of the pipework.

Diagram from last week

Question 8 Part (b)

On the diagram, show **two** features that ensure the safe functioning of the heating system.

Indicated on the Diagram



Safety Features

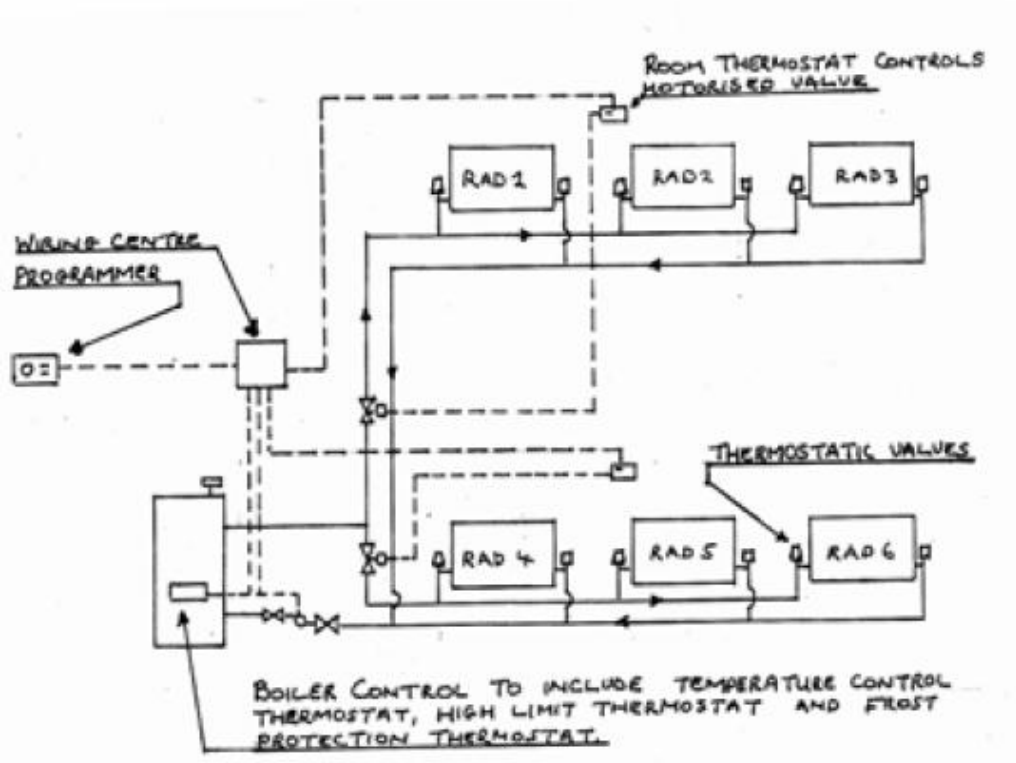
- Pressure Release Valve
- Boiler High Limit Thermostat
- Output Control Thermostat
- Boiler Control Timer Switch
- Vent Valve to Boiler
- Fire Valve on Fuel Supply
- Frost Thermostat
- Venting Pipes

Question 8 Part (c)

Using *notes and freehand sketches*, show *two* details that should be incorporated into the design of the central heating system to ensure the economical use of oil.

Zoned Heating

- Zoned Heating: Motorised valves operated by time-switches or room thermostats control the flow of hot water to radiators in zones



Zoned Heating

- A heating programmer controls the switching on/off of the system and also provides time control



Zoned Heating

- Room thermostats control individual room temperatures should be controlled using valves or equivalent forms of devices



Zoned Heating

- Thermostatic radiator valves shut off the heat to specific radiators at set room temperatures



Zoned Heating

- Handwheel valves isolate and control individual radiators



More design mechanisms to aid Economic use of Oil

- Design for short pipe runs to prevent excessive heat loss
- Insulate all hot pipes
- Design to ensure that the boiler and hot water storage cylinder are located close together
- Fit a time switch and a temperature control device to the immersion

