

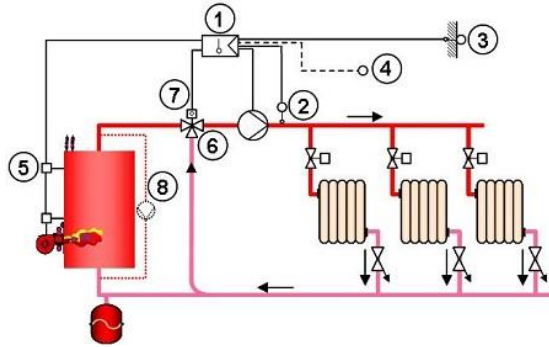
Name :

Date:

HVAC Learning.com

Exercise Booklet

Print this exercise booklet before studying the lesson on-line. It will enable you to write your answers to the HVAC learning exercises. You will thus be able to switch between reading or listening to the file on-line and writing in the booklet.



REGULATING INDIVIDUAL SYSTEMS PART 2

English lesson

<https://hvac-learning.com/heating/heating-regulating/regulating-individual-systems-part-2/>

French version:

<https://formation.xpair.com/cours/regulation-systemes-individuels-2.htm>

<https://formation.xpair.com/cours/regulation-systemes-individuels-partie3.htm>

For each exercise, you will write your answer, then you will study its correction on-line before going to the next exercise.

If you cannot do an exercise, you will be able to study its correction directly, but **force yourself to write your answer** as often as possible.

Note that between 2 exercises, you will find it necessary to study the course. As a warning, in the booklet, you will sometimes find the following indication:

- "Study the course on-line before doing the next exercise" or
- "Study the course on-line before going to the next paragraph"

Only study the paragraphs or the exercises which have an equal or a lower level than the one your training requires.

NVQ Level = Vocational Certificate

A Level = High school Diploma

HND Level = Associate's Degree

MSC Level = Engineering Schools

Then, when you have completed a file, you will be able to assess your level on-line through a Multiple Choice Questionnaire in which you will only answer the questions related to the themes you have studied.

So now off you go and work well!

Good luck!

The Authors.

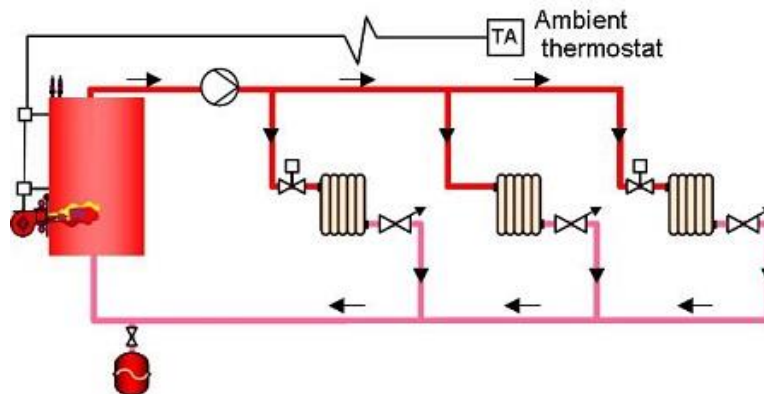
N°1 – Ambient thermostat training – NVQ to A level

Study the course on-line.



N°2 – Regulating with ambient thermostats & thermostatic valves training – NVQ to A level

Study the course on-line.



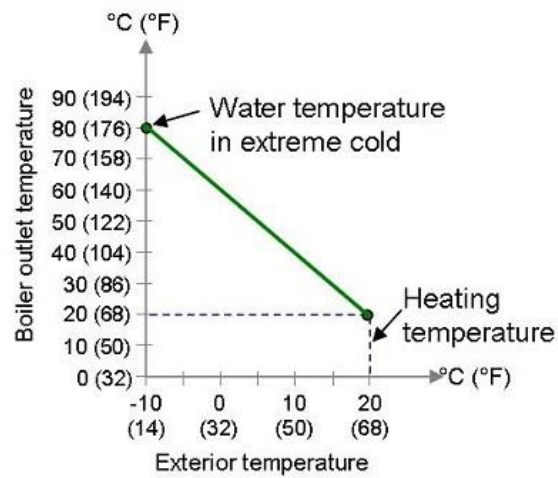
Question 1

Let us imagine, in a living room, an ambient thermostat adjusted to a set point of 21 [°C] (69.8 °F). Imagine that the radiator of this living room has been fitted by mistake with a thermostatic valve adjusted to a position corresponding to a temperature of 19 [°C] (66.2 °F). What problem will arise?

Study the course on-line before treating the next paragraphe.

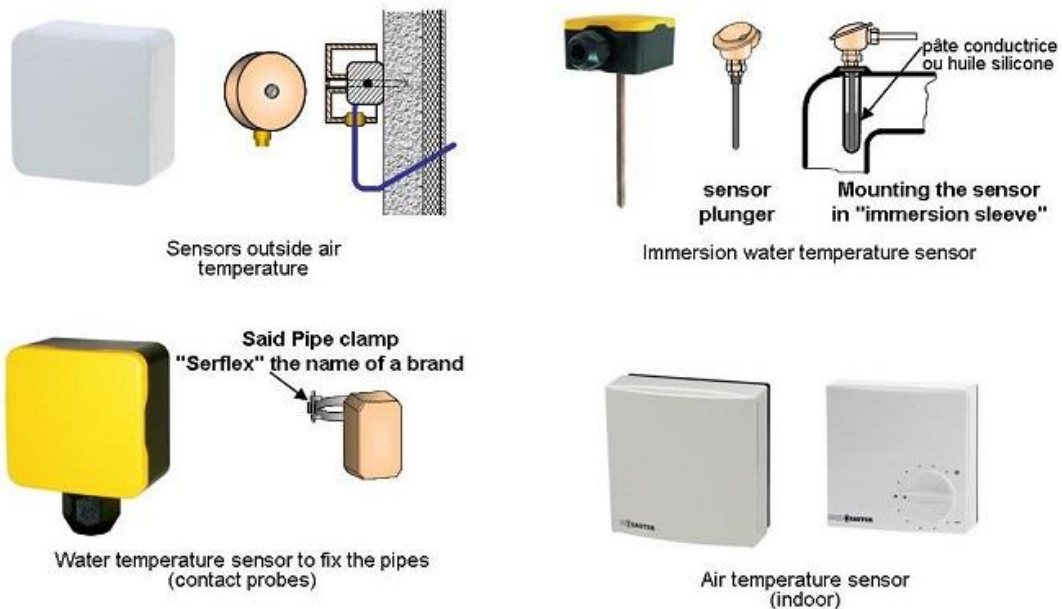
N°3 – Regulating the burner, depending on outside temperature training – NVQ level

Study the course on-line.



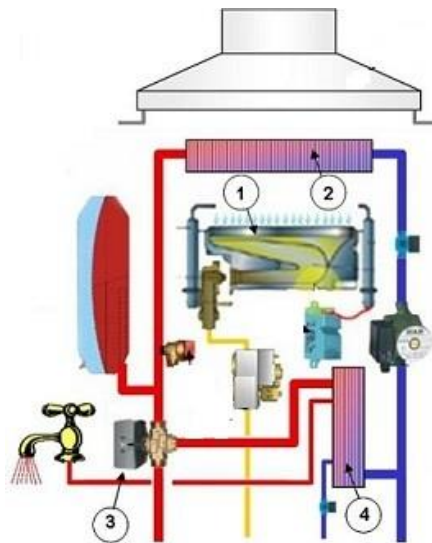
N°4 – Sensors and stats training – NVQ level

Study the course on-line.



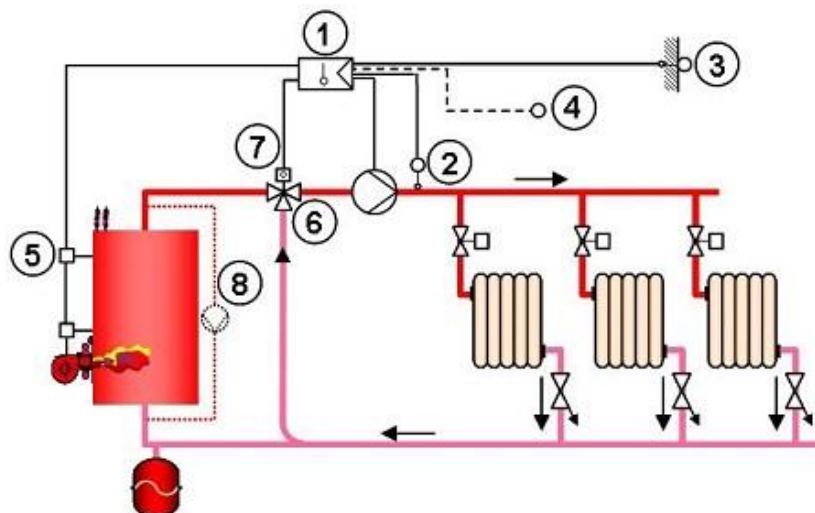
N°5 – Regulating a control valve depending on outside temperature training – NVQ level

Study the course on-line before treating the next exercise.



Question 1

State the designation of the following elements n°1 to n°8 of the system below:

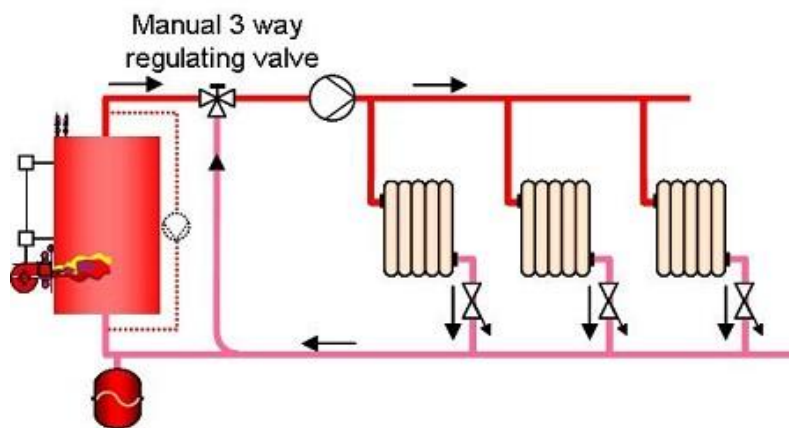


N°6 – Summary of regulating principles of individual systems – part 1 & 2 training – A level

Study the course on-line before treating the next exercise.

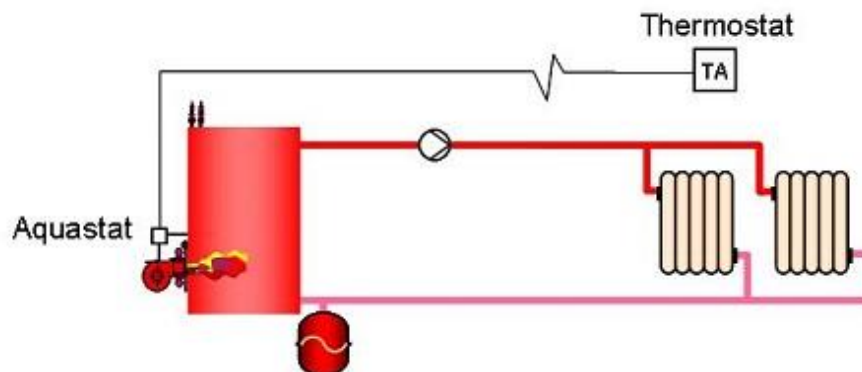
Question 1

Describe the regulating principle of a heating system where the user only has a manual valve to regulate his interior temperature.



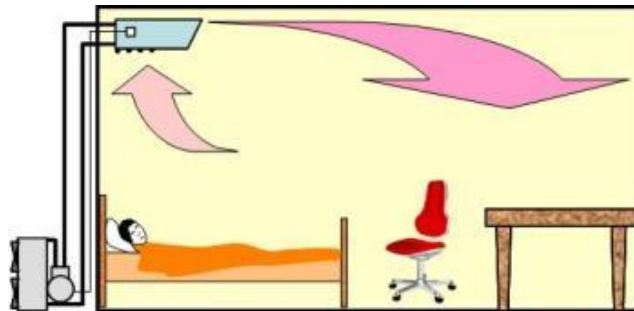
Question 2

Describe the regulating principle of the heating system below:



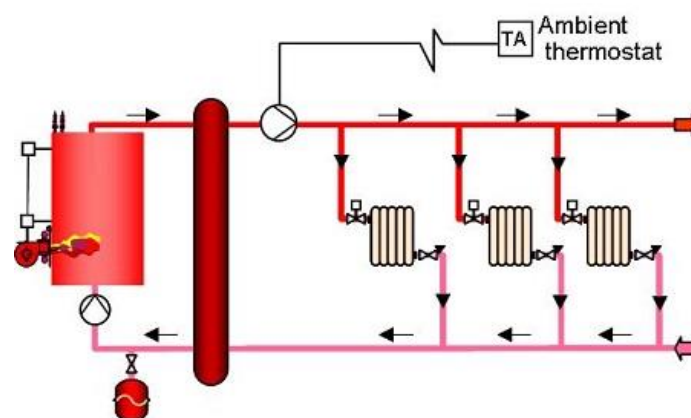
Question 3

Describe the regulating principle of the air conditioning system below:



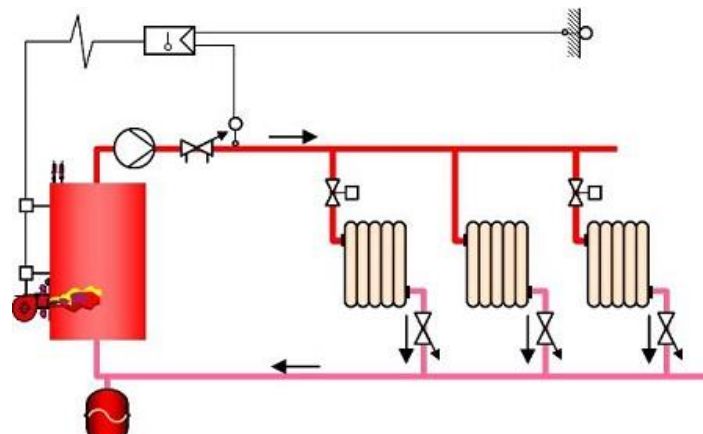
Question 4

Describe the regulating principle of the heating system below:



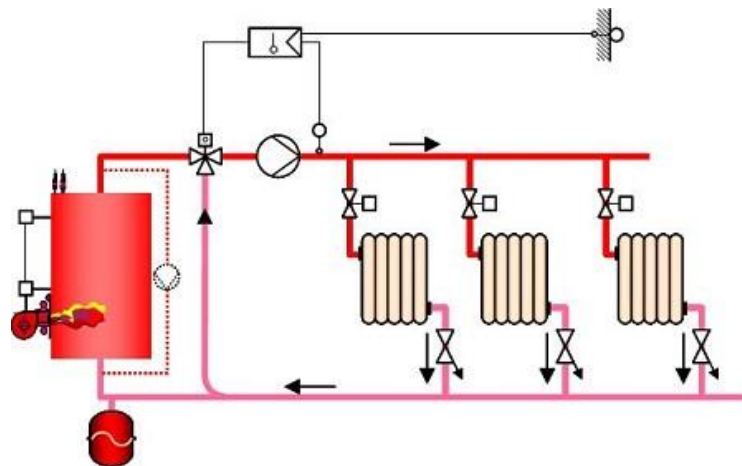
Question 5

Describe the regulating principle of the heating system below:



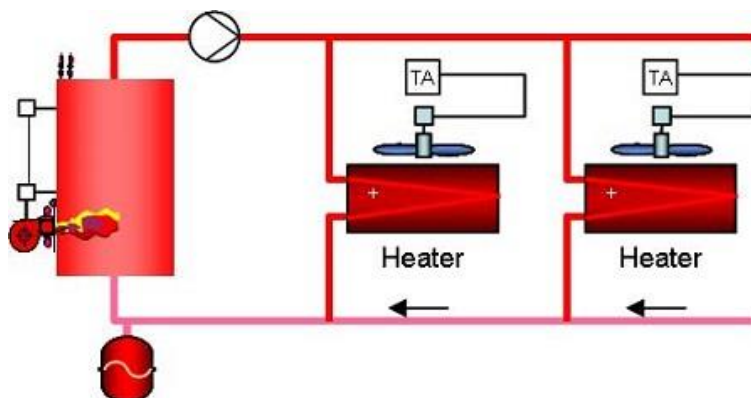
Question 6

Describe the regulating principle of the heating system below:



Question 7

Describe the regulating principle of the heating system below:

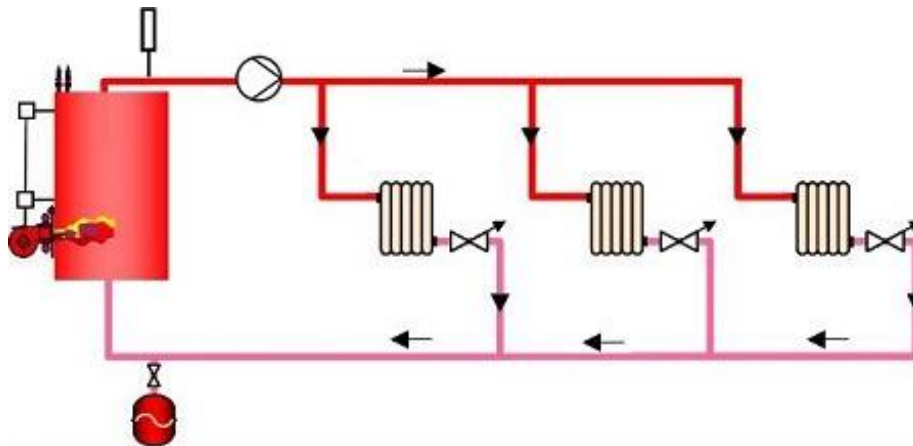


N°7 – Analysis of different ways of regulating individual systems training – A to HND level

Study the course on-line before treating the next exercise.

Question 1

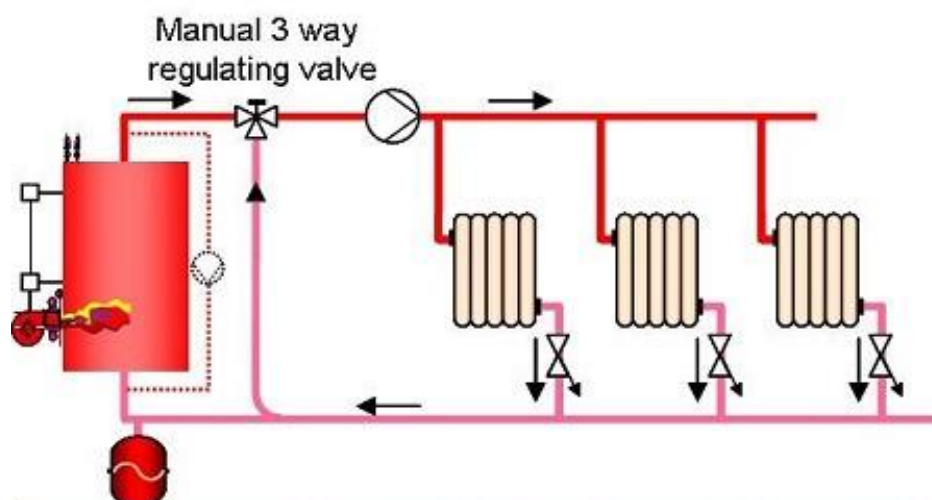
Complete the analysis table for the system below



Analysis of regulating principle	
Name of this regulating principle?	Manual regulating by action on the boiler adjustable aquastat.
Is this regulating principle low-range, mid-range or top-range?	
Is the comfort quality mediocre or correct? Why?	
Does the boiler operate permanently at high temperature?	
Is the water flow in the boiler constant or variable?	
Is this regulating principle possible for traditional gas fired boilers with atmospheric burners?	
Is this regulating principle possible for traditional fuel fired boilers? Why?	
Is this principle suitable for low temperature or condensation boilers? Why?	

Question 2

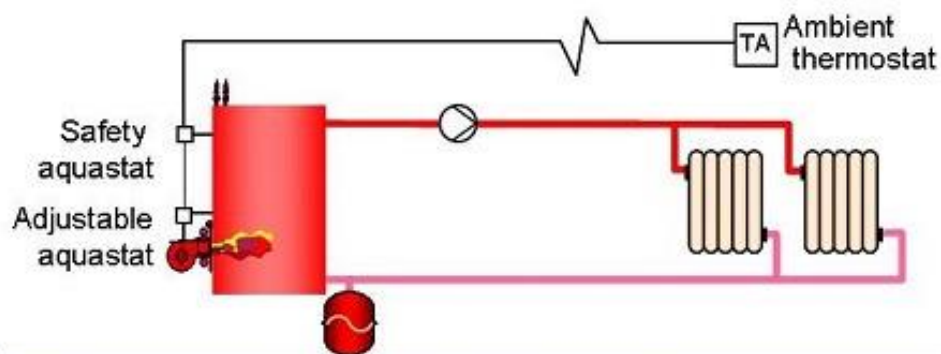
Complete the analysis table for the system below.



Analysis of regulating principle	
Name of this regulating principle?	Manual regulating by acting on a manual 2 way valve
Is this regulating principle low-range, mid-range or top-range?	
Is the comfort quality mediocre or correct? Why?	
Does the boiler operate permanently at high temperature?	
Is the water flow in the boiler constant or variable?	
Is this regulating principle possible for traditional gas fired boilers with atmospheric burners?	
Is this regulating principle possible for traditional fuel fired boilers? Why?	
Is this principle suitable for low temperature or condensation boilers? Why?	

Question 3

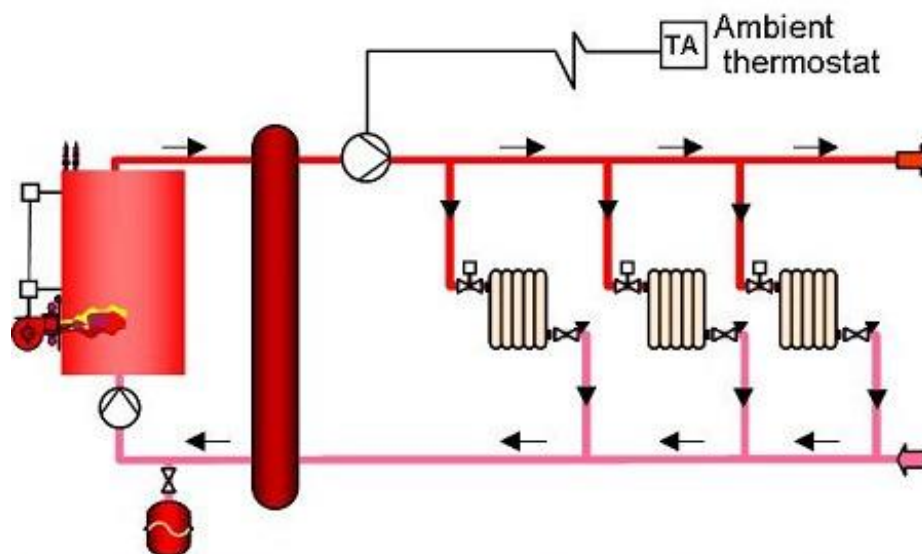
Complete the analysis table for the system below.



Analysis of regulating principle	
Name of this regulating principle?	Regulating by ambient thermostat with action on the burner
Is this regulating principle low-range, mid-range or top-range?	
Is the comfort quality mediocre or correct? Why?	
Does the boiler operate permanently at high temperature?	
Is the water flow in the boiler constant or variable?	
Is this regulating principle possible for traditional gas fired boilers with atmospheric burners?	
Is this regulating principle possible for traditional fuel fired boilers? Why?	
Is this principle suitable for low temperature or condensation boilers? Why?	

Question 4

Complete the analysis table for the system below.

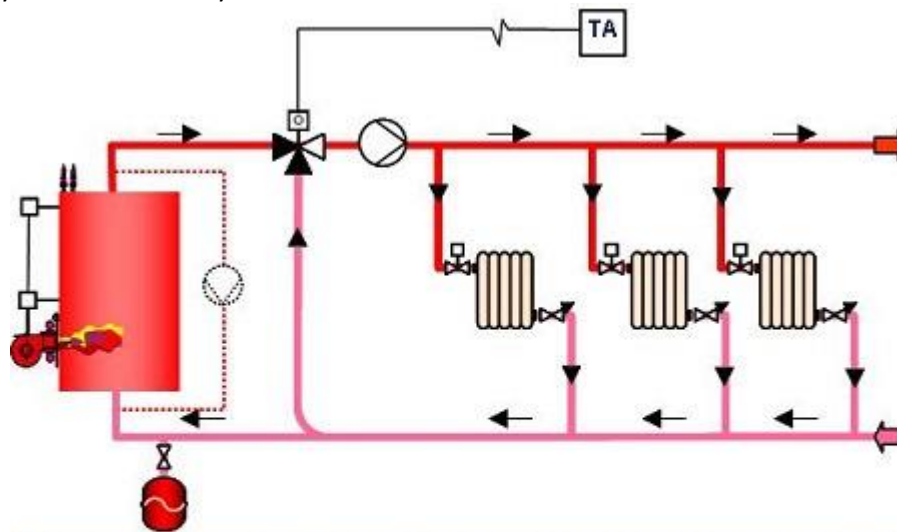


Analysis of regulating principle	
Name of this regulating principle?	Regulating by ambient thermostat acting on the circulation pump.
Is this regulating principle low-range, mid-range or top-range?	
Is the comfort quality mediocre or correct? Why?	
Does the boiler operate permanently at high temperature?	
Is the water flow in the boiler constant or variable?	
Is this regulating principle possible for traditional gas fired boilers with atmospheric burners?	
Is this regulating principle possible for traditional fuel fired boilers? Why?	
Is this principle suitable for low temperature or condensation boilers? Why?	

N°8 – Analysis of different ways of regulating individual systems – contd. training – A to HND level

Question 1

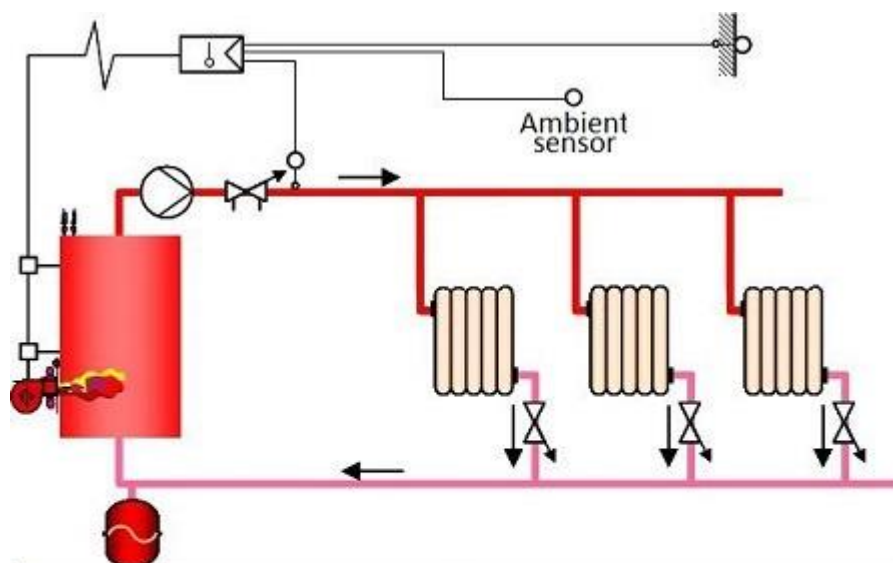
Complete the analysis table for the system below.



Analysis of regulating principle	
Name of this regulating principle?	Regulating by ambient thermostat acting on the regulating valve
Is this regulating principle low-range, mid-range or top-range?	
Is the comfort quality mediocre or correct? Why?	
Does the boiler operate permanently at high temperature?	
Is the water flow in the boiler constant or variable?	
Is this regulating principle possible for traditional gas fired boilers with atmospheric burners?	
Is this regulating principle possible for traditional fuel fired boilers? Why?	
Is this principle suitable for low temperature or condensation boilers? Why?	

Question 2

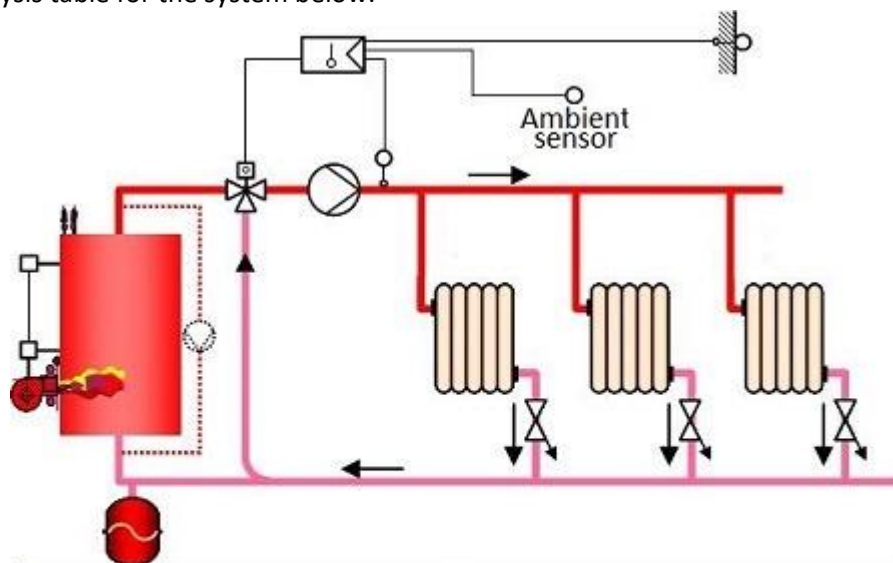
Complete the analysis table for the system below.



Analysis of regulating principle	
Name of this regulating principle?	Regulating subject to exterior temperature and interior temperature compensation acting on the burner boiler
Is this regulating principle low-range, mid-range or top-range?	
Is the comfort quality mediocre or correct? Why?	
Does the boiler operate permanently at high temperature?	
Is the water flow in the boiler constant or variable?	
Is this regulating principle possible for traditional gas fired boilers with atmospheric burners?	
Is this regulating principle possible for traditional fuel fired boilers? Why?	
Is this principle suitable for low temperature or condensation boilers? Why?	

Question 3

Complete the analysis table for the system below.



Analysis of regulating principle	
Name of this regulating principle?	Regulating subject to exterior temperature and interior temperature compensation by acting on a 3 way valve.
Is this regulating principle low-range, mid-range or top-range?	
Is the comfort quality mediocre or correct? Why?	
Does the boiler operate permanently at high temperature?	
Is the water flow in the boiler constant or variable?	
Is this regulating principle possible for traditional gas fired boilers with atmospheric burners?	
Is this regulating principle possible for traditional fuel fired boilers? Why?	
Is this principle suitable for low temperature or condensation boilers? Why?	

Summary:

	Does the boiler operate at high temperatures permanently?	Suitable for traditional gas-fired boilers with atmospheric burner?	Suitable for traditional fuel-burning boilers?	Suitable for condensation boilers?	Comfort quality ?
Manual regulating on the aquastat	No	Possible but low-range	No	Mediocre	Mediocre
Manual regulating on the regulating valve	Yes	Pointless	Possible but low-range	No	Mediocre
Regulating by ambient thermostat, acting on the burner	Yes & No. Yes, when the thermostat demands a long operation period	Yes, except for under-floor heating	No	No	Correct
Regulating by ambient thermostat, acting on the regulating valve	Yes	Possible	Possible	No	Correct
Regulating subject to exterior temperature with interior temperature compensation acting on the regulating valve	Yes	Pointless	Acceptable	No	Correct
Regulating subject to exterior temperature with interior temperature compensation acting on the burner	No	No	No	Yes	Correct

English lesson

<https://hvac-learning.com/heating/heating-regulating/regulating-individual-systems-part-2/>

French version:

<https://formation.xpair.com/cours/regulation-systemes-individuels-2.htm>

<https://formation.xpair.com/cours/regulation-systemes-individuels-partie3.htm>

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