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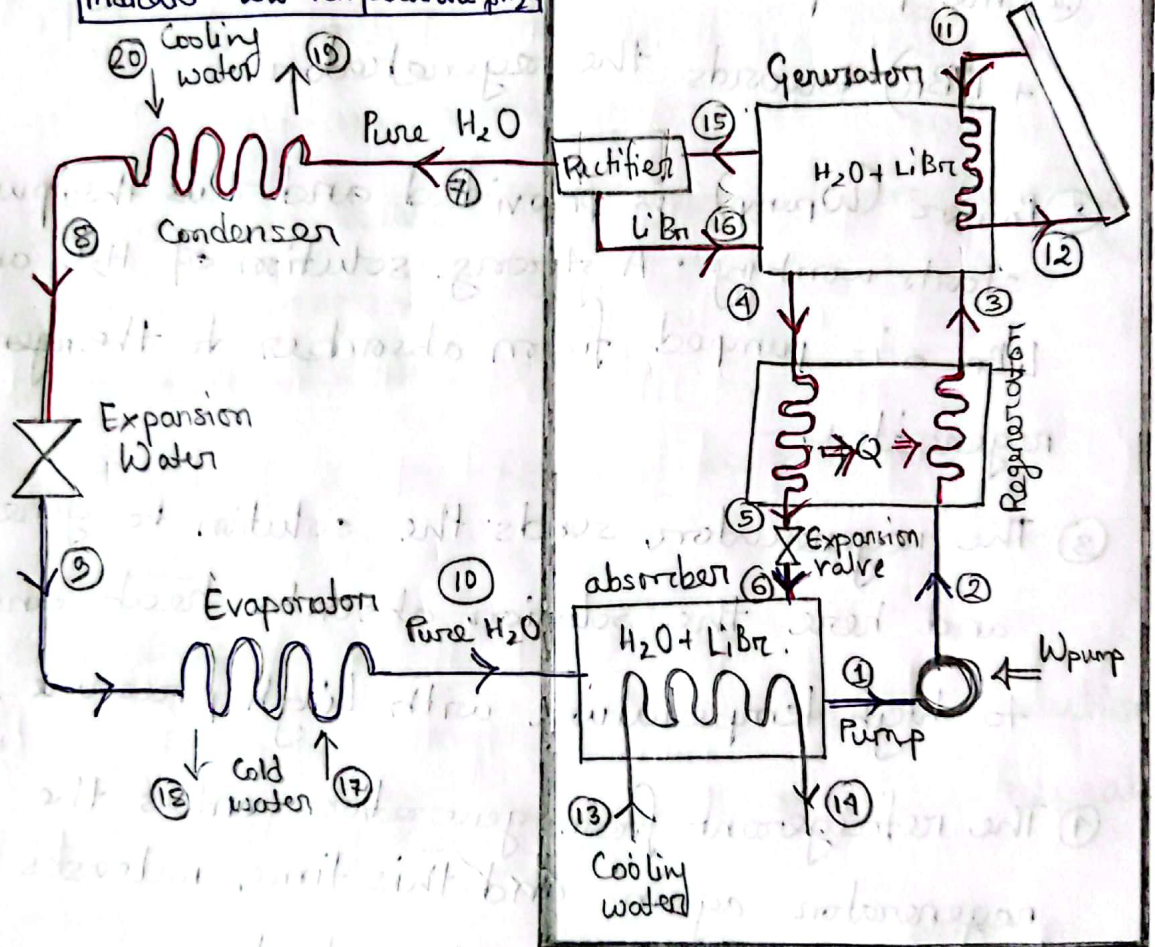
Day _____

Time: _____

Date: / /

② Describe the Vapour Absorption Refrigeration process with a schematic diagram.

Answer: Red arrows indicate high temperature H_2O
Blue ink and arrows indicate low temperature H_2O



In case of vapor absorption refrigeration the absorber and the generator does the compression instead of a compressor.

Steps of

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Sub: _____

Day _____

Time: _____

Date: / /

Steps of the vapor absorption refrigeration process are cited below:

- ① The pump is used to send the refrigerant ($\text{H}_2\text{O} + \text{LiBr}$) towards the regenerator.
- ② Power (W_{pump}) is provided and thus the pump starts working. A strong solution of H_2O and LiBr is pumped from absorber to the ~~regenerator~~ regenerator.
- ③ The regenerator sends the solution to generator and here the solution absorbs heat and goes to high temperature with high pressure.
- ④ The refrigerant from generation enters the regenerator again and this time releases heat and leaves the regenerator slowly.
- ⑤ Then enters the Expansion valve and ~~goes~~ gets expanded as due to reduction of pressure.
- ⑥ The expand refrigerant enters the absorber and the pump does the same thing as in step 1 is repeated.

Sub: _____

Day

Time: _____

Date: / /

⑦ The generator sends the high temperature solution not only to the regenerator but also to the rectifier which separates LiBr and H_2O . Pure water is sent to the condenser.

⑧ Condenser condenses the H_2O and sends it to the Expansion valve.

⑨ Expand fluid leaves the expansion or throttling valve with high low temperature under low pressure and enters the evaporator.

⑩ Pure water gets evaporated and enters the absorber where exists the high temperature refrigerant (H_2O and LiBr). Now the pure water with low temperature weakens the solution ($\text{H}_2\text{O} + \text{LiBr}$), Cools it down and step-1 is repeated thus.

~~⑪ Here, heat from ORC water enters the~~
Some minor steps are done inside the coils; and absorber and generator :-

⑪ Heat from ORC waste enters the generator and mixes with the refrigerant ($\text{H}_2\text{O} + \text{LiBr}$).

Sub: _____

Day

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Time: _____

Date: / /

- (12) ~~The~~ Some heated liquid leaves the generator and step - 11 is repeated once ORC waste heat is absorbed again.
- (13) This step is done inside the absorber, cooling water is provided ~~in the~~ into the absorber which help weakening the solution. ~~and~~
- (14) Water leaves the absorber.
- (15) This step is between the generator and rectifier where H_2O and $LiBr$ enters the rectifier and is separated. Rectifier sends pure water out towards condenser.
- (16) The separated $LiBr$ inside the rectifier enters the Generator again. This is the step where $LiBr$ is avoided from going outside the compression process.
- (17) It happens in the evaporator. ~~Cold water enters~~ Heat is low pressured vapour will enter.
- (18) Low pressured vapour leaves the Evaporator.
- (19) Cooling water leaves condenser.
- (20) Cooling water enters the condenser.