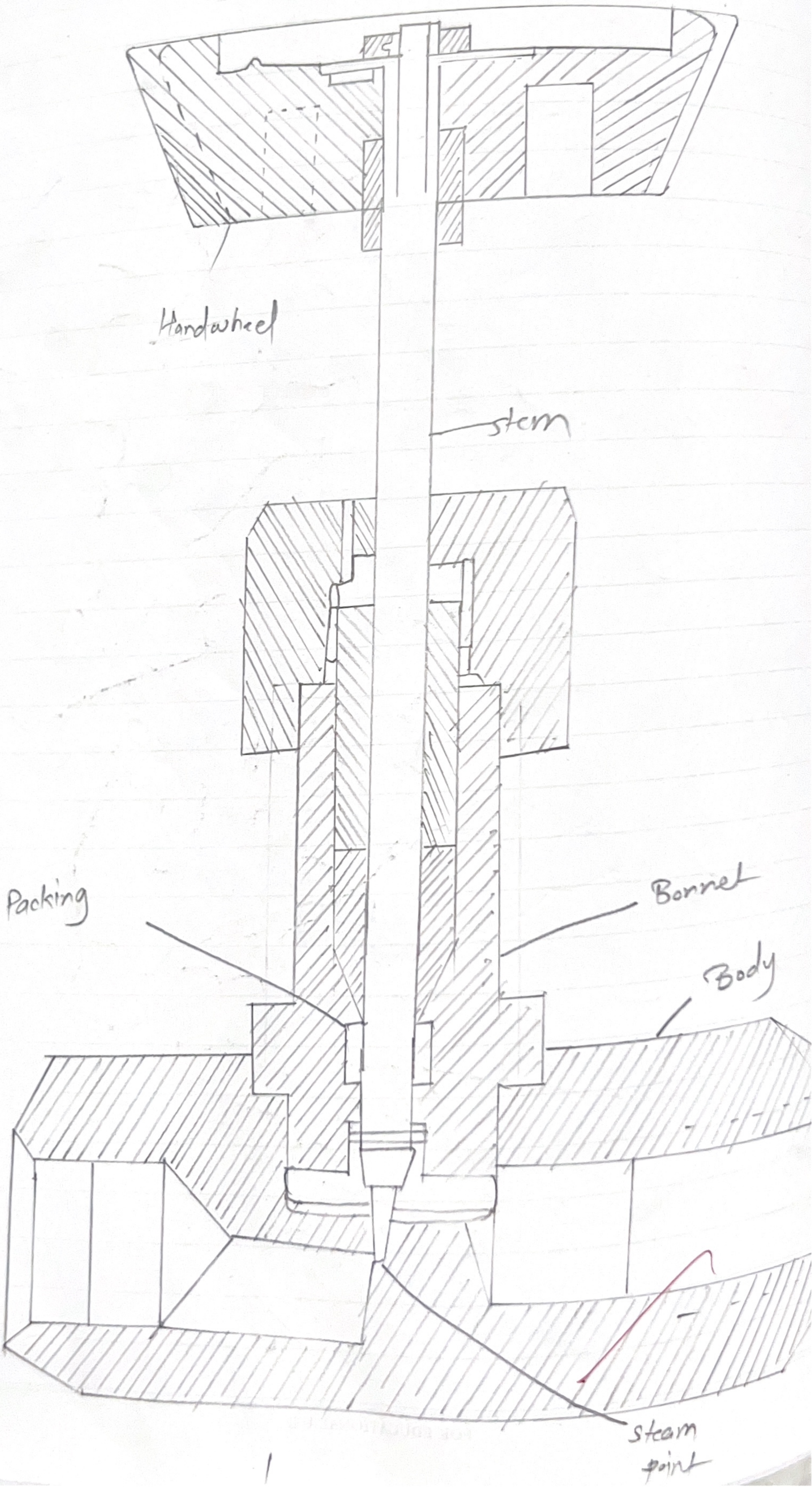

Handwheel
stem
Packing
Bonnet
Body
steam point

DATE:

Aim:- To study different Types of Valve.

(i) Needle valve.
(ii) Gate valve
(iii) Check valve.

Theory:-

Types of Valve.

(i) Needle valve:- is a type of valve that can be used to regulate or compete the isolation of the fluid

(ii) The unique feature of the valve is the structures of a small plunger with the shape of a needle.

(iii) The plunger features the small handle to operate in the easy and precise operation of the valve

(iv) when fully attached., the extended end of the valve fits exactly into the seat a part of the appliance that is being regulated

(v) In case of valve opened by mistake, then also space betn and needle and seat are so less, that a minimal amount of substance will be allowed to pass through it.

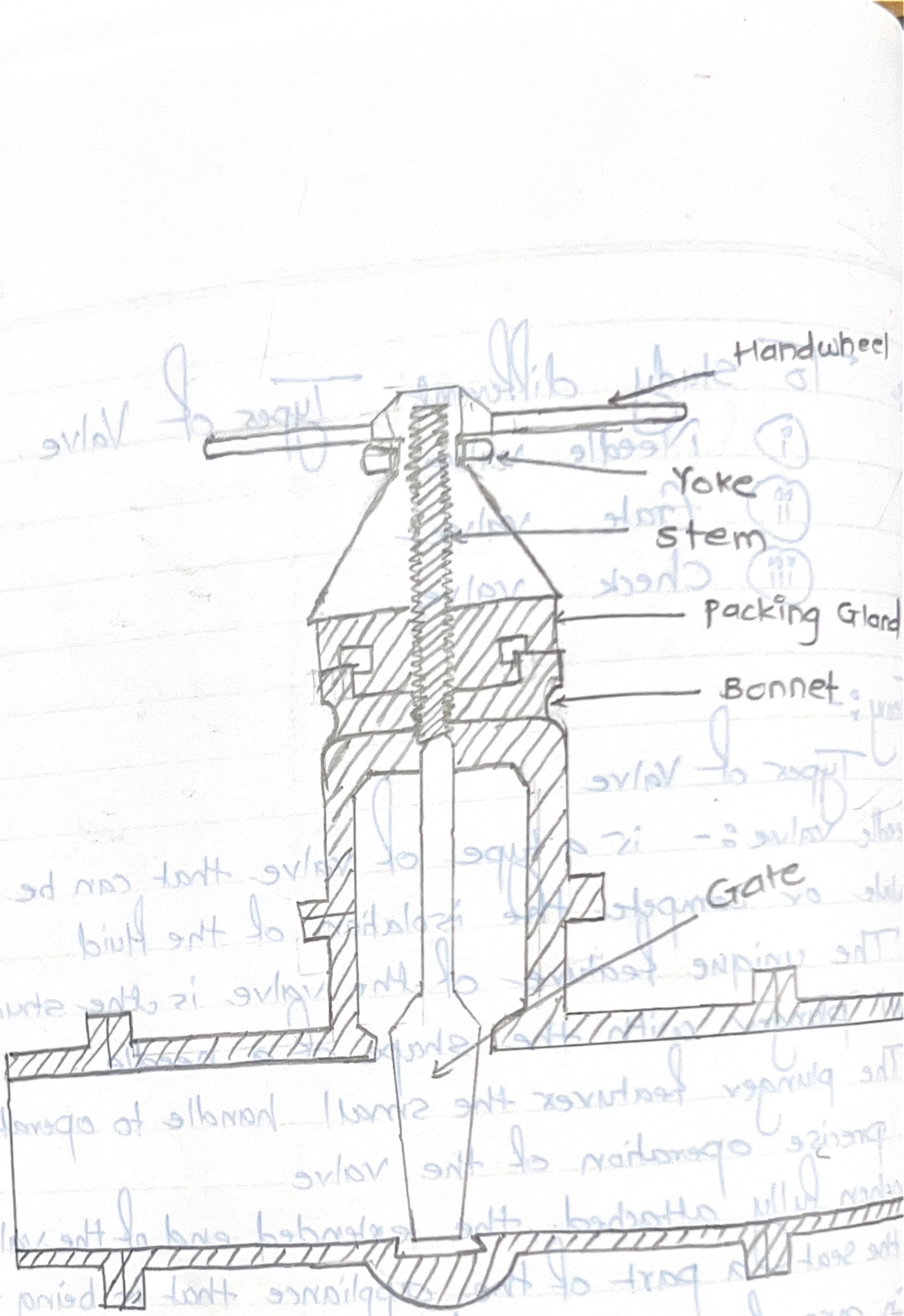
(vi) It is used with constant pressure pump governers in order to reduce the fluctuation in the pump discharge

(vii) Needle valves are used in automated combustion control system in which accurate flow regulation is required.

(viii) This can be used where metering applications required such as steam, air, gas, oil or water.

(ii) Gate Valve:-

① Gate Valves are primarily designed to serve as isolation valves In service these valves generally are either fully open or fully closed


Handwheel
Yoke
stem
Packing Gland
Bonnet
Gate

DATE:

(2) when fully open the fluid or gas flow through the valve in a straight line with very little resistance.

(3) Gate valve should not be used in the regulation or throttling of flow because accurate control is not possible.

(4) Furthermore high-flow velocity in partially opened valves may cause erosion of the discs and seating surfaces.

(5) Vibration may also result in chattering of the partially opened valve disc.

(6) An exception to the above are specially designed gate valves that are used for low-velocity throttling for example guillotine gate valves for pulp stock.

(7) Construction :-

(a) Gate valve consist of 3 major components body, bonnet & flanged and trim. The body is generally connected to the piping by means of flanged, screwed or welded connection. (b) The bonnet, containing the moving parts is joined to the body, generally with bolts to permit cleaning and maintenance.

(iii) Check Valve :-

(1) Check valve is a device that only allows the flow of fluids in one direction.

(2) They are commonly referred to as Non Return valves

(3) The main purpose of a check valve is to prevent back flow in the system.

(4) A check valve relies on a pressure differential to work

(5) They require a higher pressure on the input side of the valve than the outside side to open the valve

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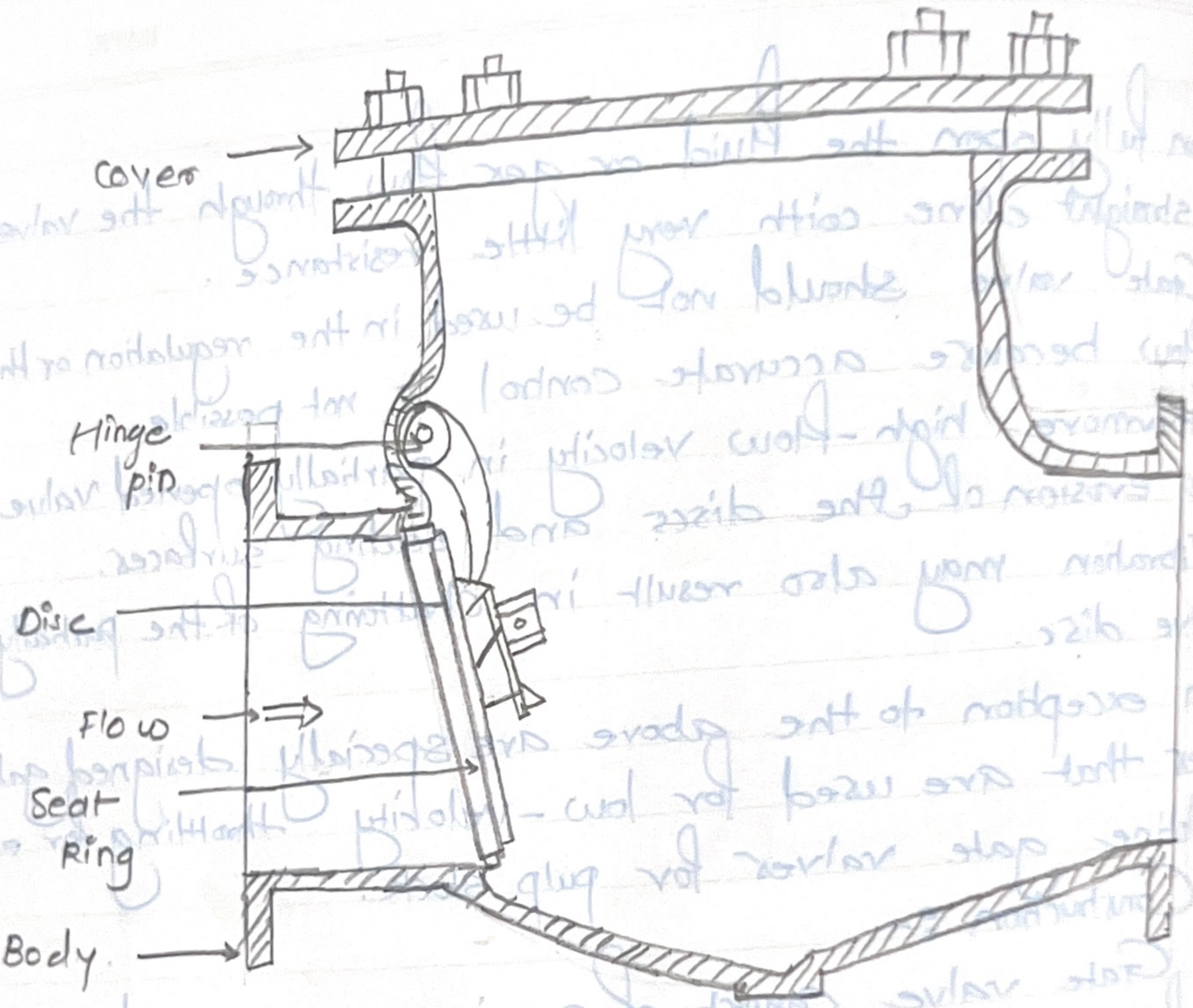
Cover
Hinge pin
Disc
Flow
Seat Ring
Body

DATE:

(6) when the pressure is higher on the outlet side the valve will close.

(7) Depending on the valve type, the closure mechanism is different.

(8) Backflow can cause an issue if the backflow is contaminated and therefore contaminates the media upstream.

(9) There are various sizes, designs and material to ensure there is a check valve for every application.

(10) A check valve will be used commonly on the discharge of the pump to prevent backflow from the downstream system when the pump shuts off.

(11) Check valves are also used to prevent contaminated media in branches from following back into the main trunk line.

Conclusion :-

Hence we studied about the different types of valve i] check valve ii] Needle valve iii] Gate valve and also observed the types of valve

26/4/22 (A)

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