

نحوذ في الكل  
مادة: هندسة وادارة المصانع

الفرقة: الزاوية - هندسة صناعية  
لدائرة جديدة

الفضل الى ابي اسدك للعام الجامعي  
٢٠١٩ / ٢٠٢٠

→ اسدك

1

(30 Mark)

(a) plant Management: (5)

It is the application of know  
tools and scientific techniques to pl  
activities in order to meet or exc  
the system needs and expectations fr  
the plant.

(b) plant performance evaluation

When making an evaluation for  
organization or plant, we must  
into consideration all the following:

- 1 - Time
- 2 - Cost
- 3 - Qual
- 4 - Quantity
- 5 - Resources
- 6 - plant conditions
- 7 - Maint

# c) plant Management Information (PMIS).

(5)



- 1- Basic data
- 2- Requirements
- 3- Targets
- 4- Constraints

- 1- Rights I
- 2- To the rig
- 3- At the ri
- 4- In the r

(d) For year 2007:- (13)

January:-

11/1/2007

For year 2008:

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January:-  
 $P.E = 91.67\%$   
 $Q.R = 92.73\%$

For year to date:

$P.E = 88.9\%$   
 $Q.R = 93.75\%$

Ans. (Q2): (35)

(a) General Factors in planning

- 1- Safety Considerations
- 2- Building Code req.
- 3- Economical distribution of ser

(1) Utilization Ratio

$$UR = \frac{18}{20} = \frac{\text{Used time}}{\text{Available time}}$$

(2) Design of pipeline system

No. of pipes = 84 pipes

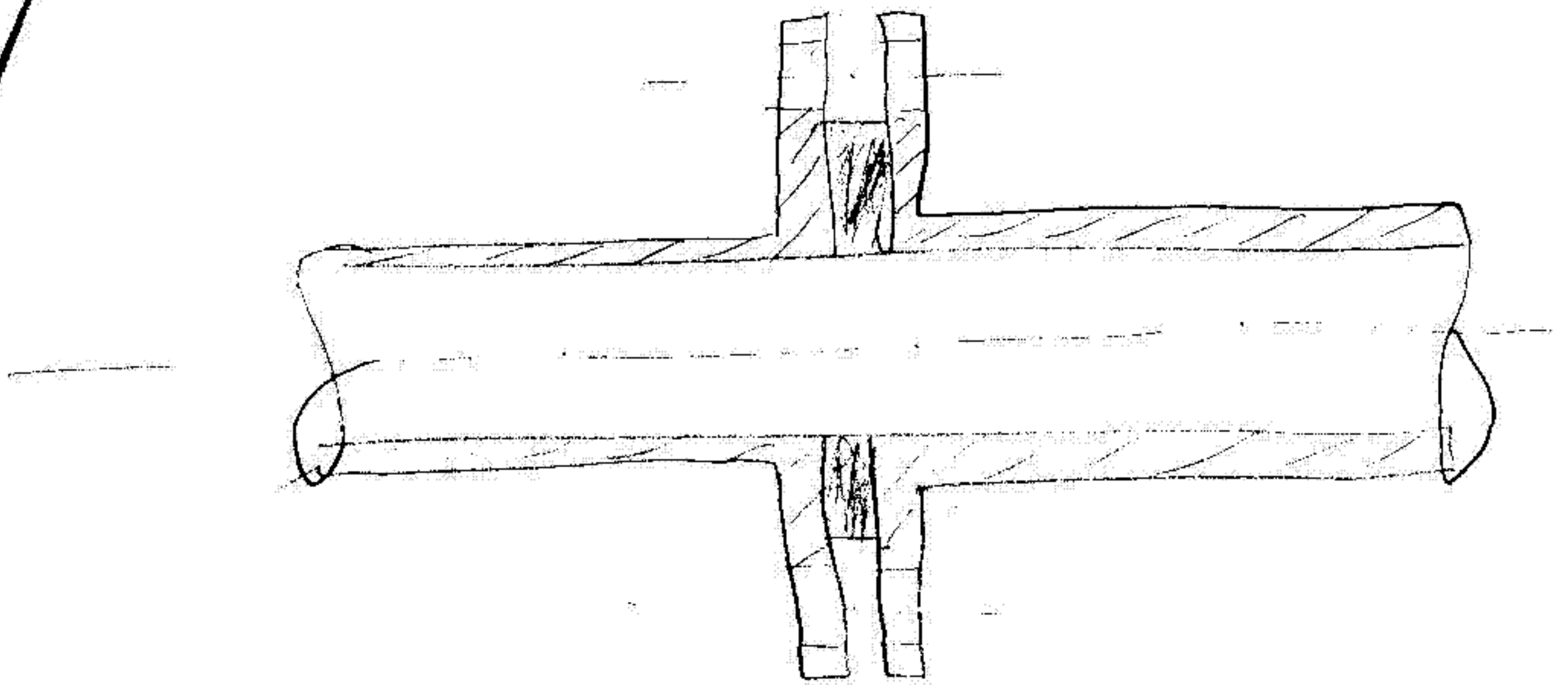
$$Q = 0.015625 \text{ m}^3/\text{s}$$

$$V_1 = 2.35 \text{ m/s}$$

(3) Select of pump station:

- Centrifugal pump
- power 225 kW

# Pipe Joining

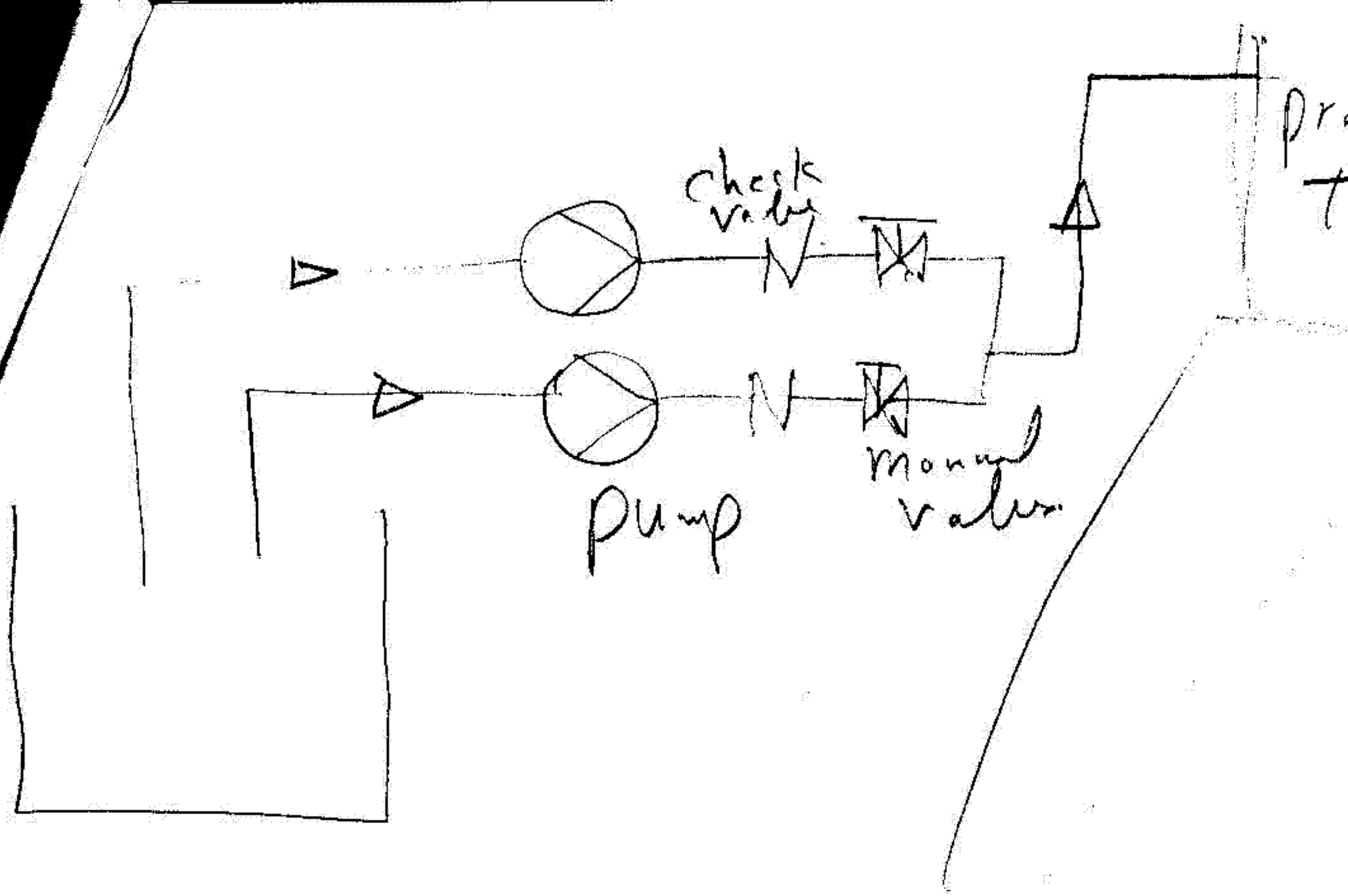


(6) Process Tank Design

$$V = 14.06 \text{ m}^3$$

$$L = 4.5 \text{ m}$$

$$D = 2 \text{ m}$$



(8) Activity description

1 -

## Resource list:-

- 1 - site
- 2 - pipes
- 3 - pu
- 4 - Building Resource
- 5 - Tan
- 6 - Electricity
- 7 - water

## 10) Activity description

- 1 - plant design
- 2 - Main components technical
- 3 - Site location
- 4 - Tender
- 5 - Design piping and pumps
- 6 - work order
- 7 - erection
- 8 - t

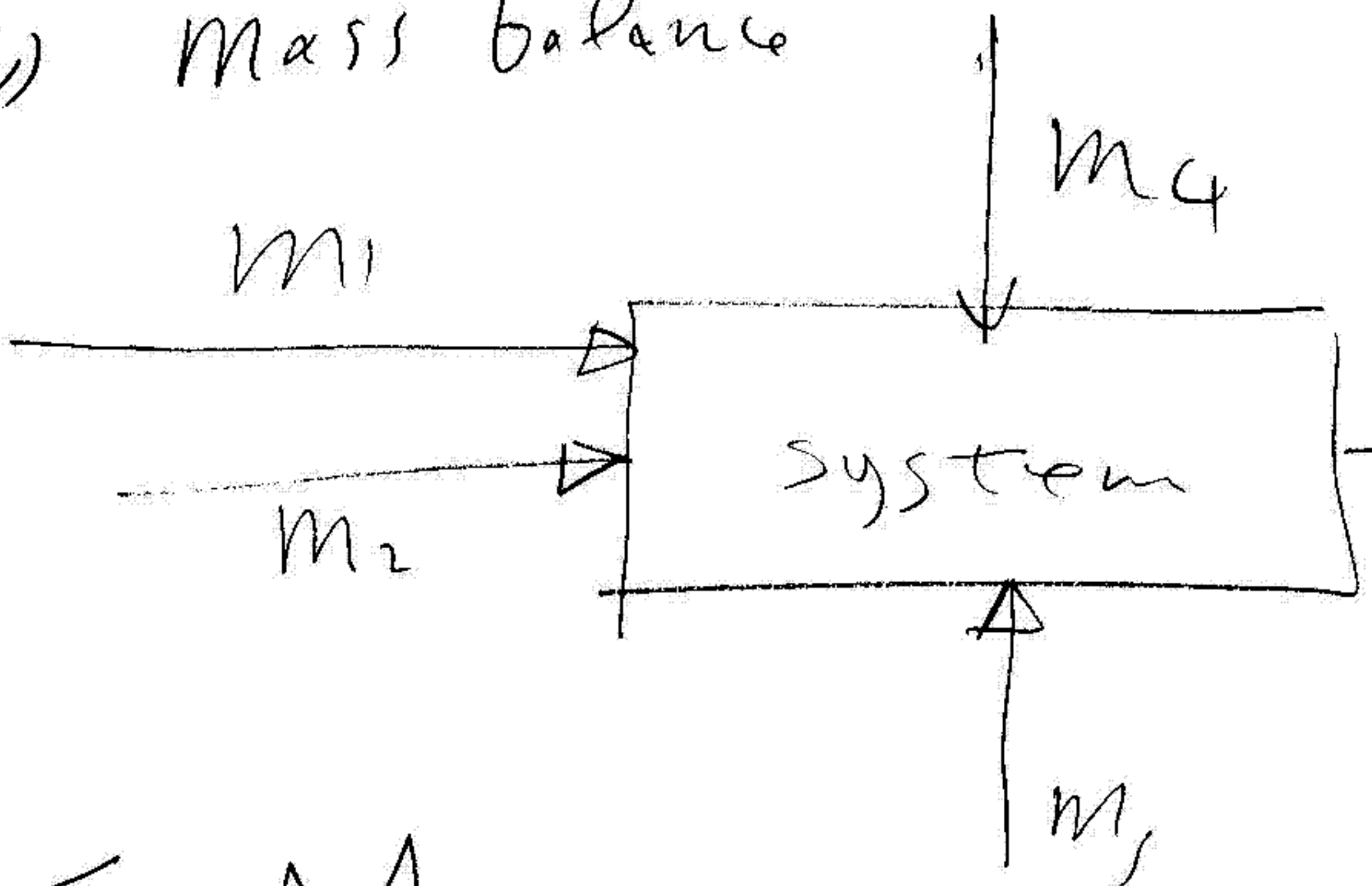
## II Cost estimation

Total cost = 180,000



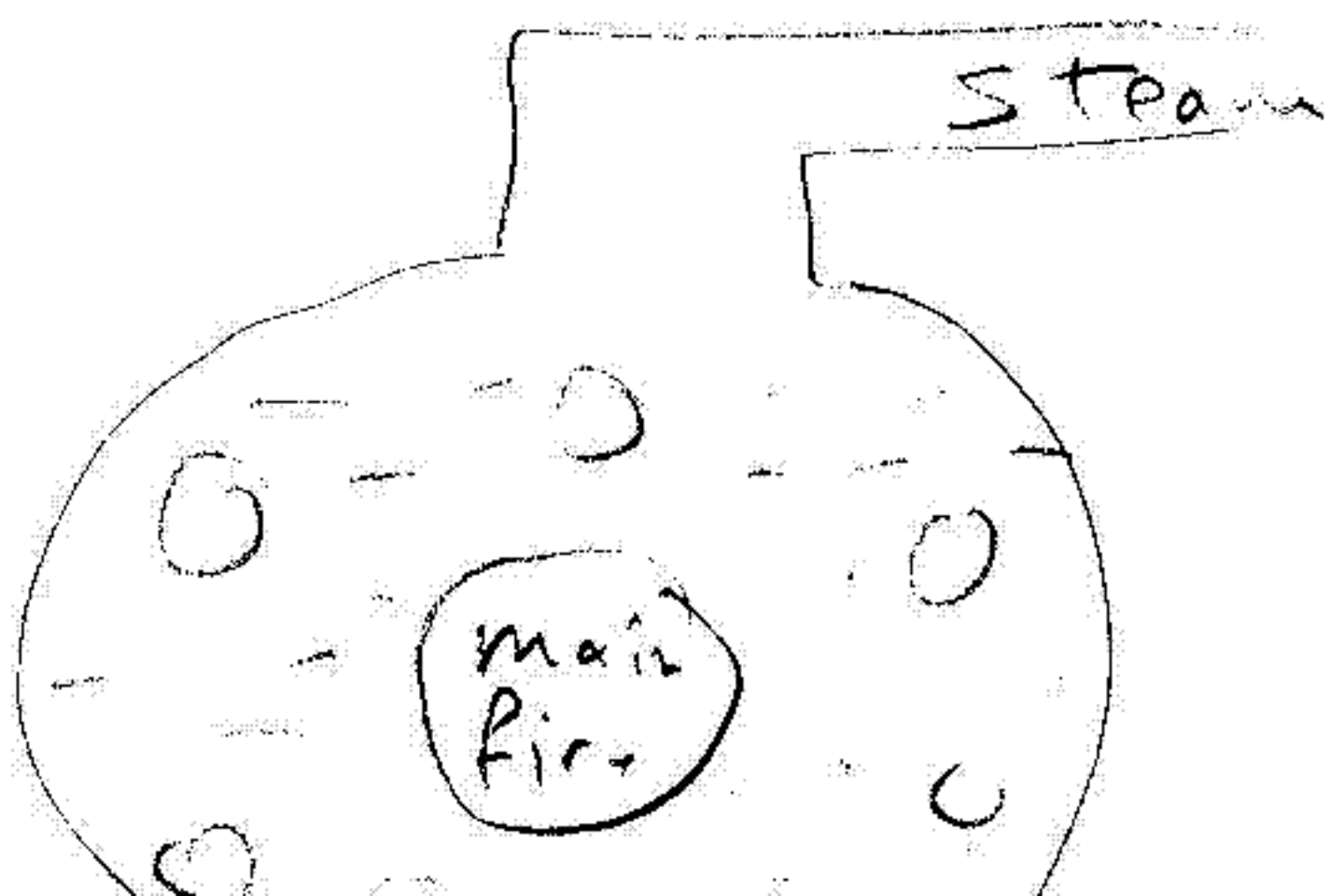
Q3: (35)

(a) mass balance



$$\sum M_{in} = \sum M_{out}$$

(b) Fire tube



- 1- water i tube
- 2- Fire at tube
- 3- ...

(1) Annual production rate

$$= 8 \times 10^4 \text{ ton/year}$$

$$(2) \text{ QR} = 71.5\%$$

(3) Select of boiler

Fire - tube boiler

(4) Annual fuel consumption:-

$$\eta = \frac{m_{shs} - m_{whw}}{m_{ip} \text{ HAV}}$$

$$m_{ip} = 224.5 \text{ Kg/hr}$$

# design of pipes:

$$D = 21.61 \text{ cm}$$

$$Q = 0.642 \text{ m}^3/\text{s}$$

(7) Cost rate

$$= 62.95 \text{ L. \text{€} / A}$$