

[..register saqa admin .national framework regulatory qualifications . instituts foreigners](#)

[Credit subject entry .ngf1.12..](#)

[Award diplomat work day certificate.1th,.2.th.,3th.,4th level](#)

I'd number submitted.. record

Academic transcript learner student lecturer..

N national certificate diplomat.

Credit equivalent entry evidence explain

50%..50/100..equivalent. award minimum. meeting

Name surname credit acredit minimum

I'd/name/years qualifications//provision//.

I'd	Name surname	years qualificati ons	provision	file student	submitted document file	Courses attandanc e	exam attended
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1.register national examination.

N diplomat. Examination n 1.n6 diplomat t1.

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I'd number	Name surname	years	file student	submitted document file	Courses attendance	exam attended
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Level1.2.3 minimum engineering electrical learning national trade

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National

I'd number	class level	file number	submitted number	documents attached	Courses attendanc e	exam attended
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N1.n3..rwwiten final engineering

N1,N2, council test trade .

Councils education..

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Rectorat college director principal

System

College internal registered. St peace

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.grade..1..12... level 1.2.63.4.5.6

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Learner

Teacher

Lecture

Professional

Subject faculty admnise

Regularity .. irregularity ruling

I'd name . Term 1.2.3.4.5.6.7.8.9.semester1,2

Report internal diploma.certificate award . internal statement internal report . homework classwork test .exam internal syllabus hand book campus module practice.

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Remark.////
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Designing... workplace workshop..

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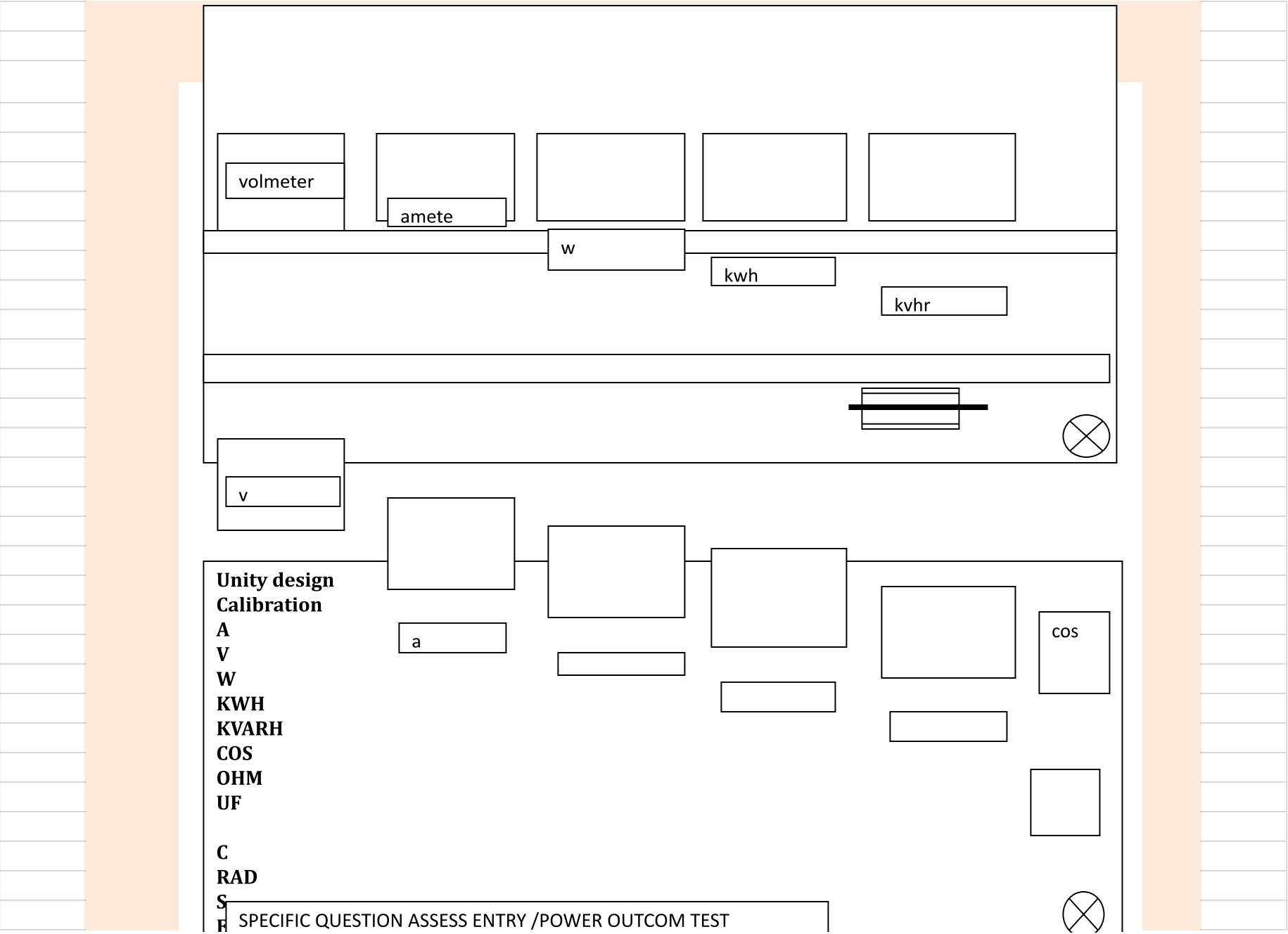
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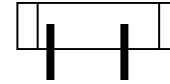
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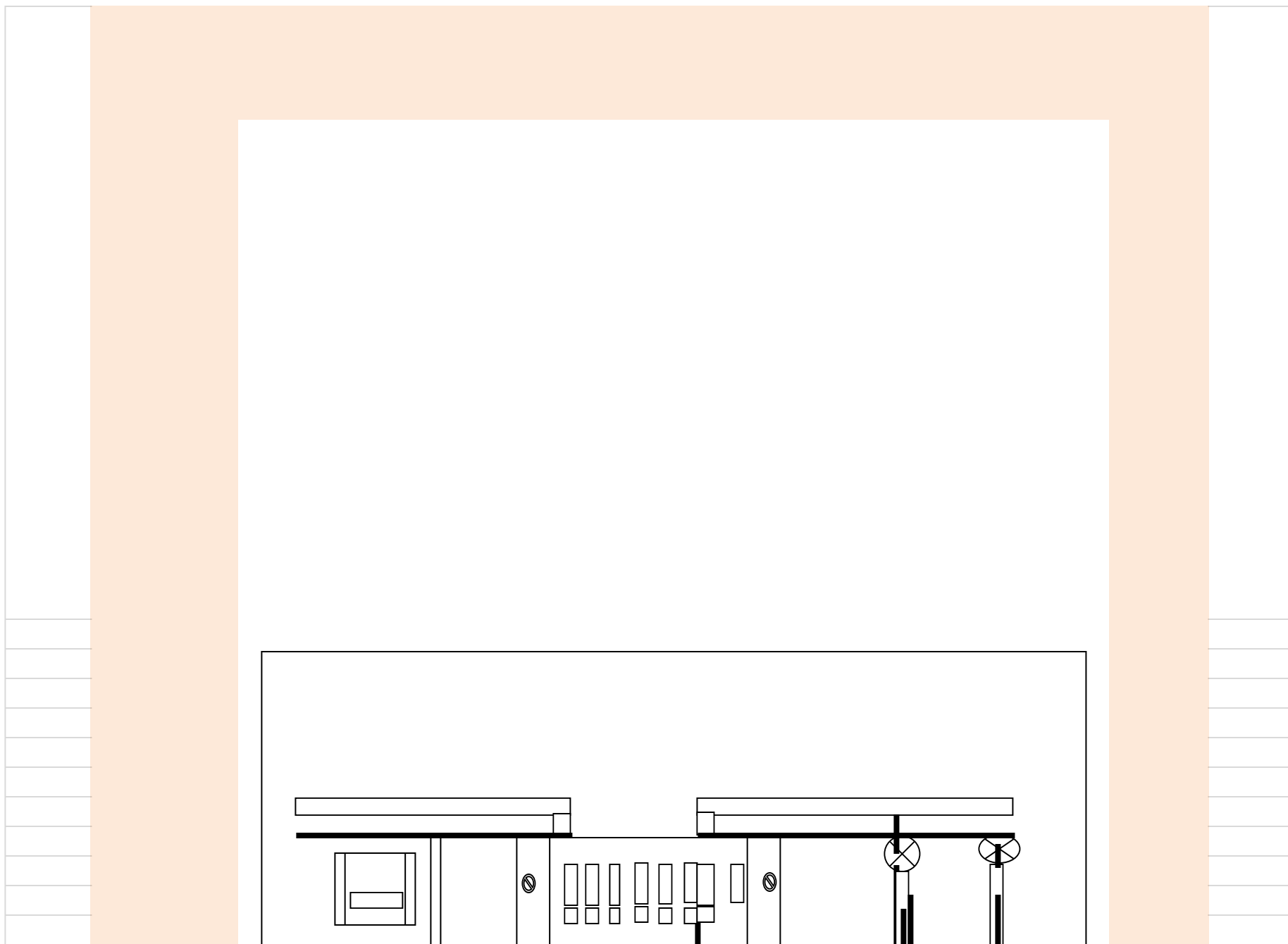
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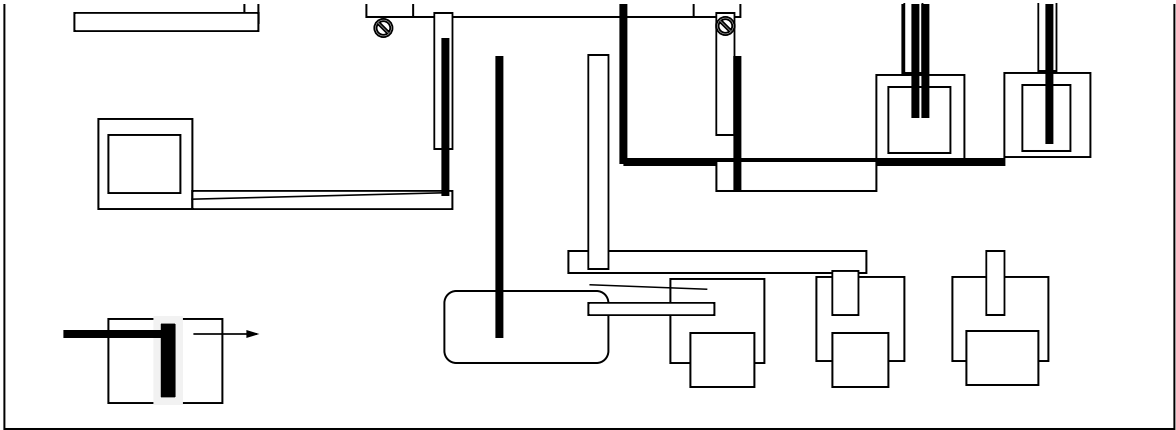


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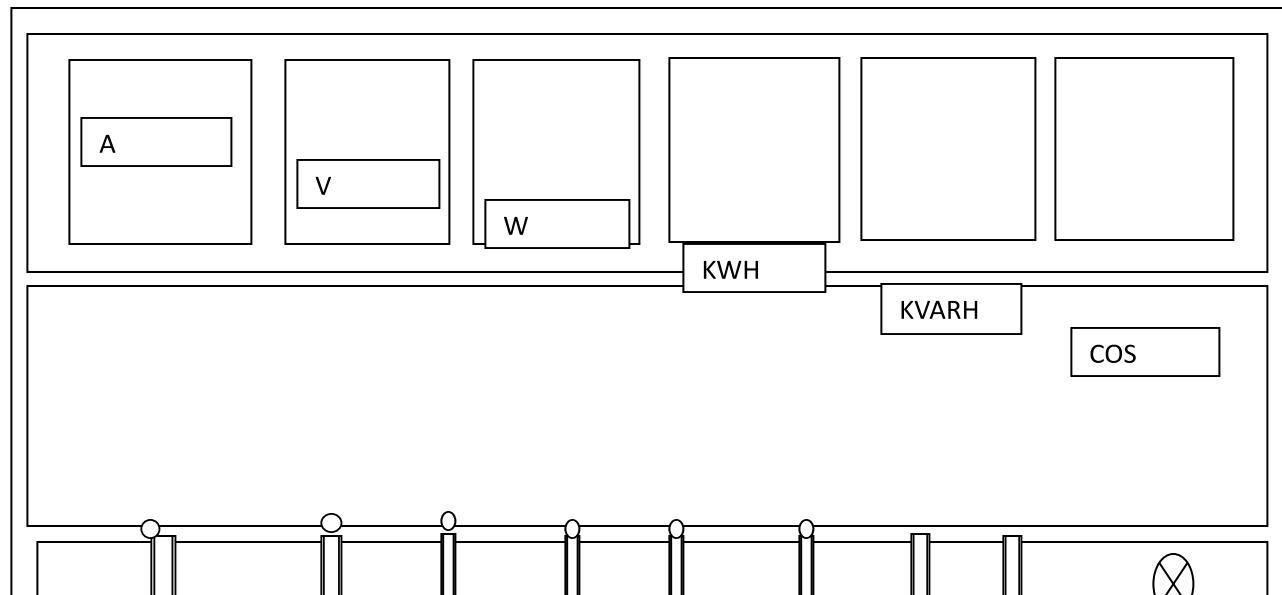


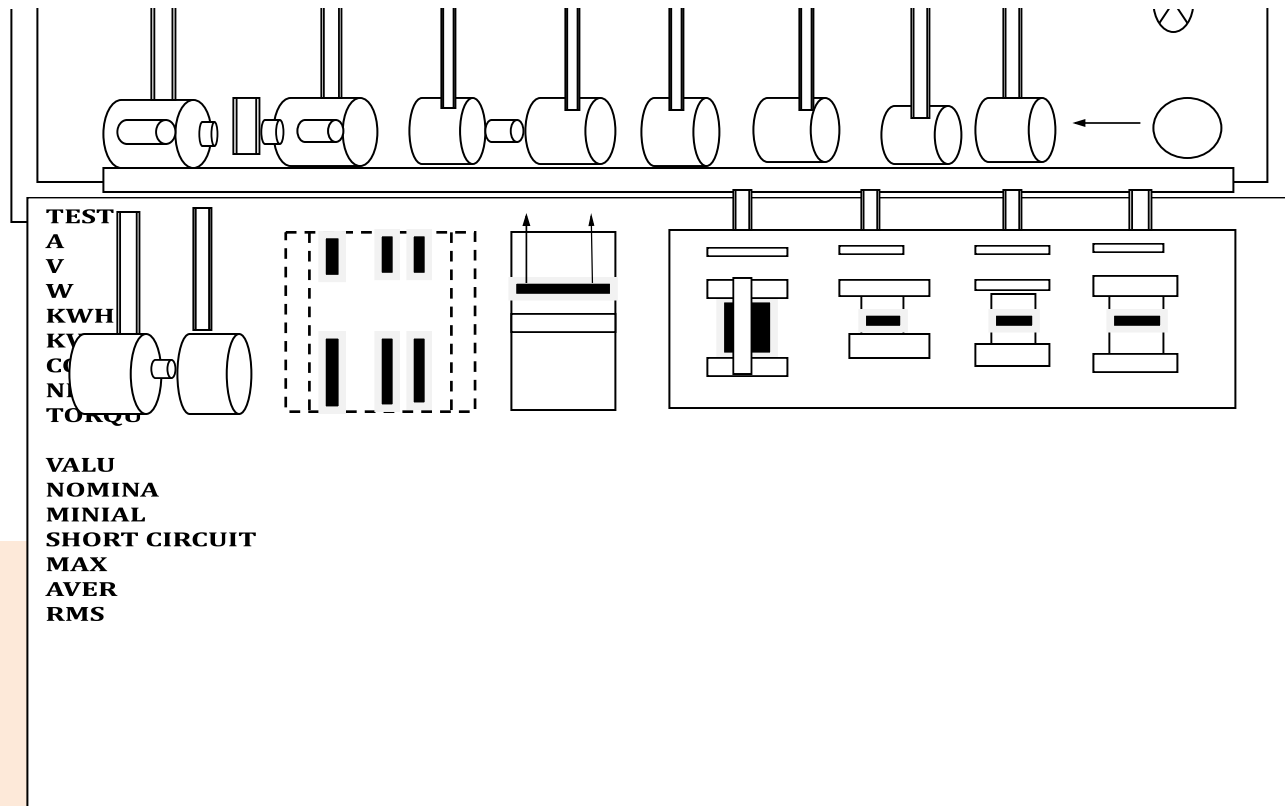
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SPECIFIC QUESTION answer / ASSESS ENTRY /POWER OUTCOM TEST correct





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4.tools assessment check

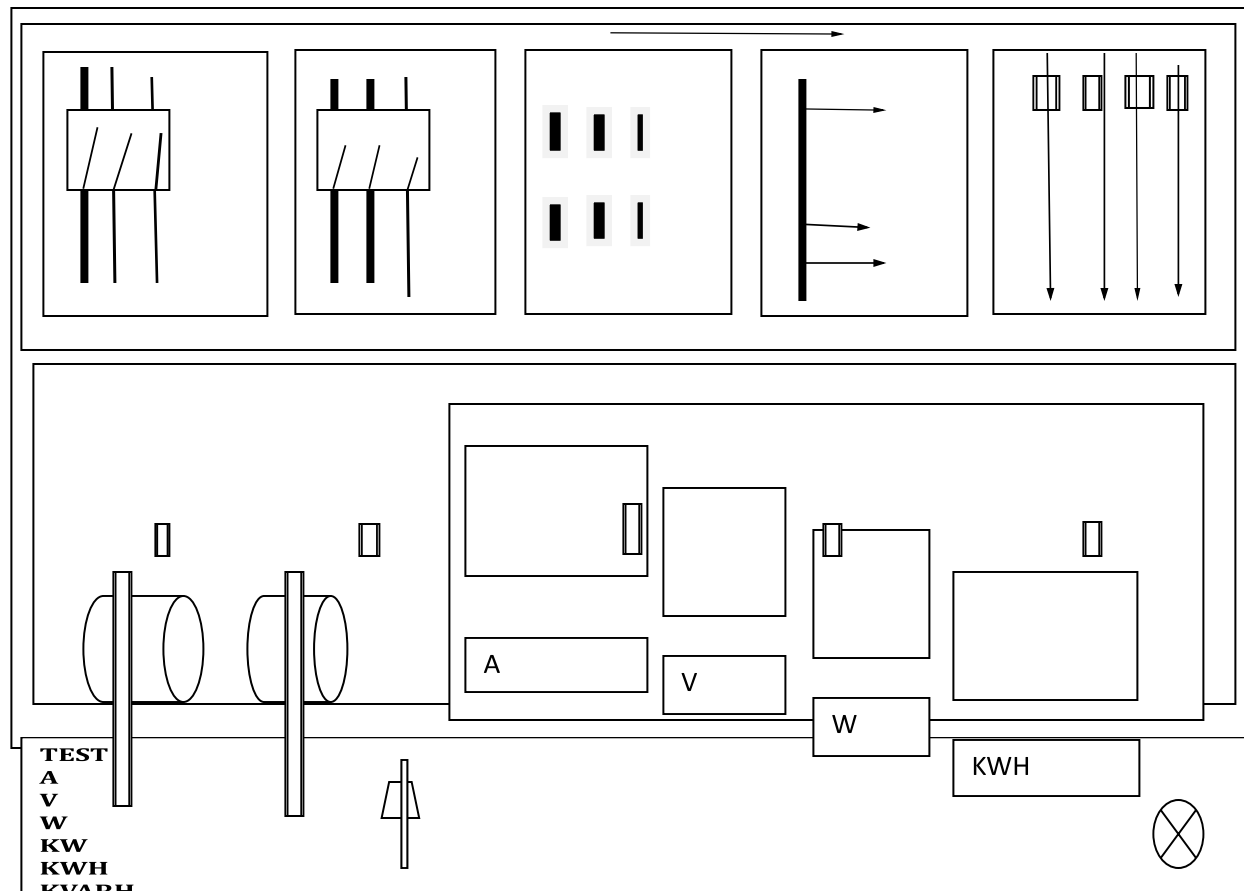
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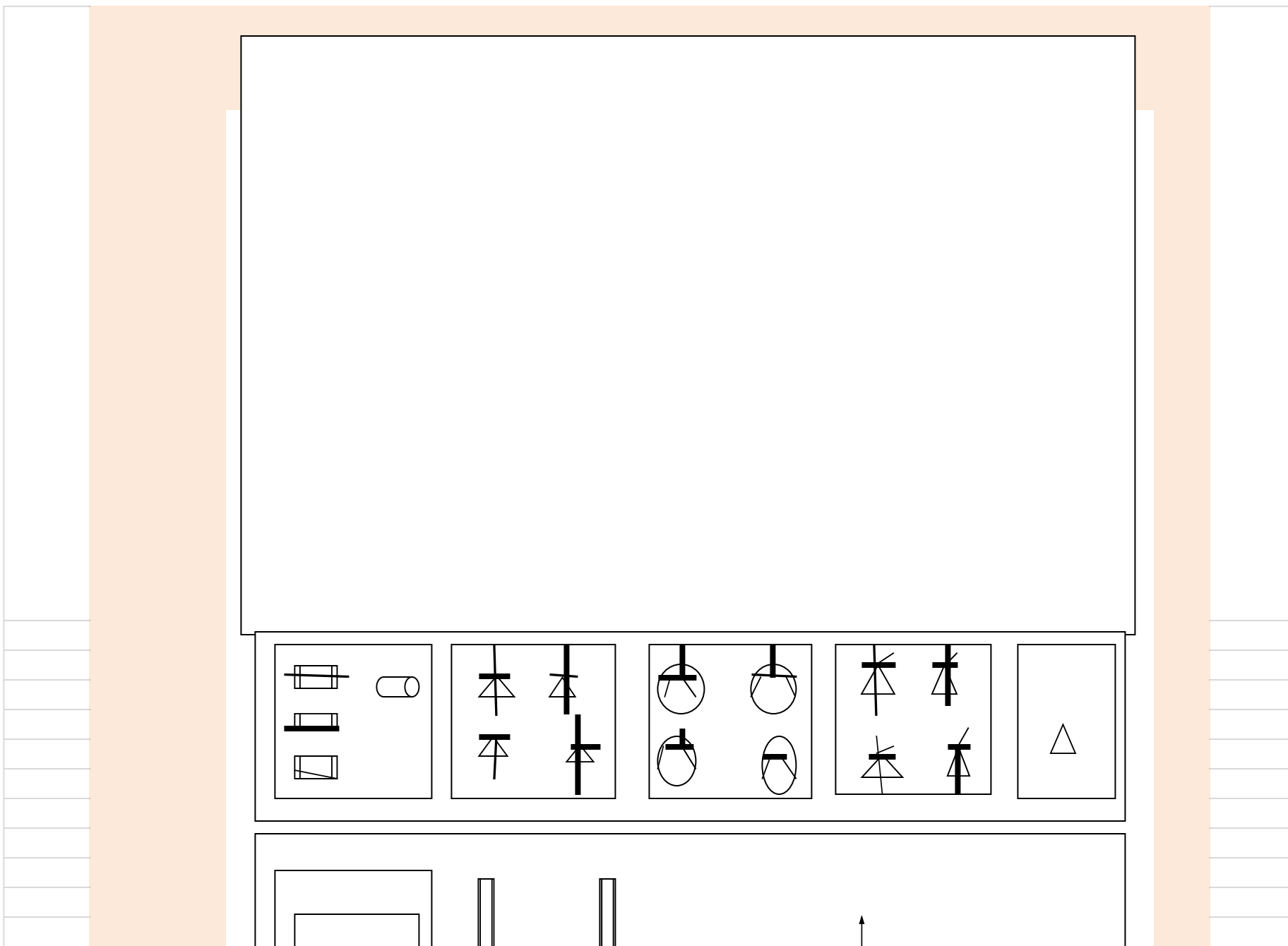
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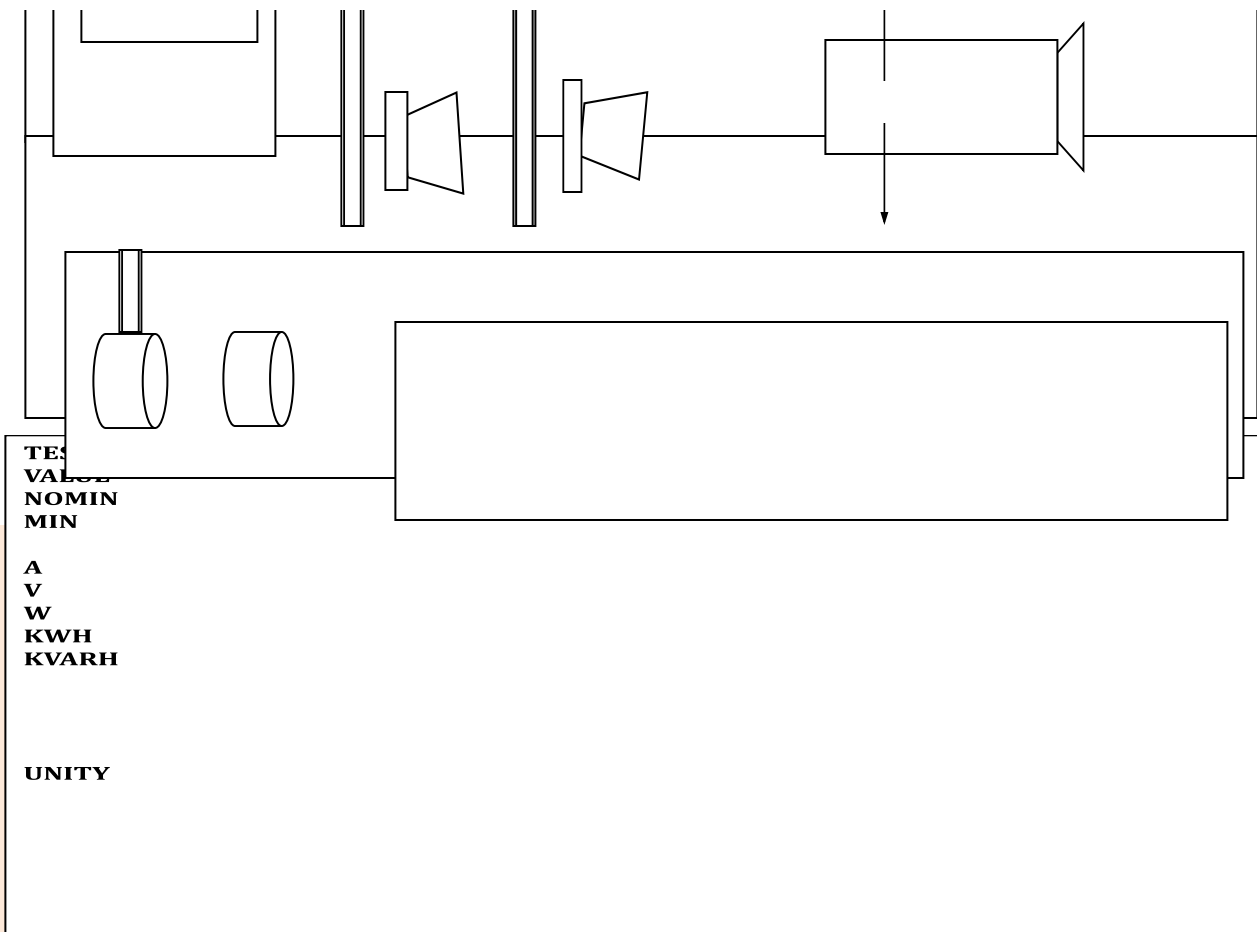


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[5.tools assessment](#)
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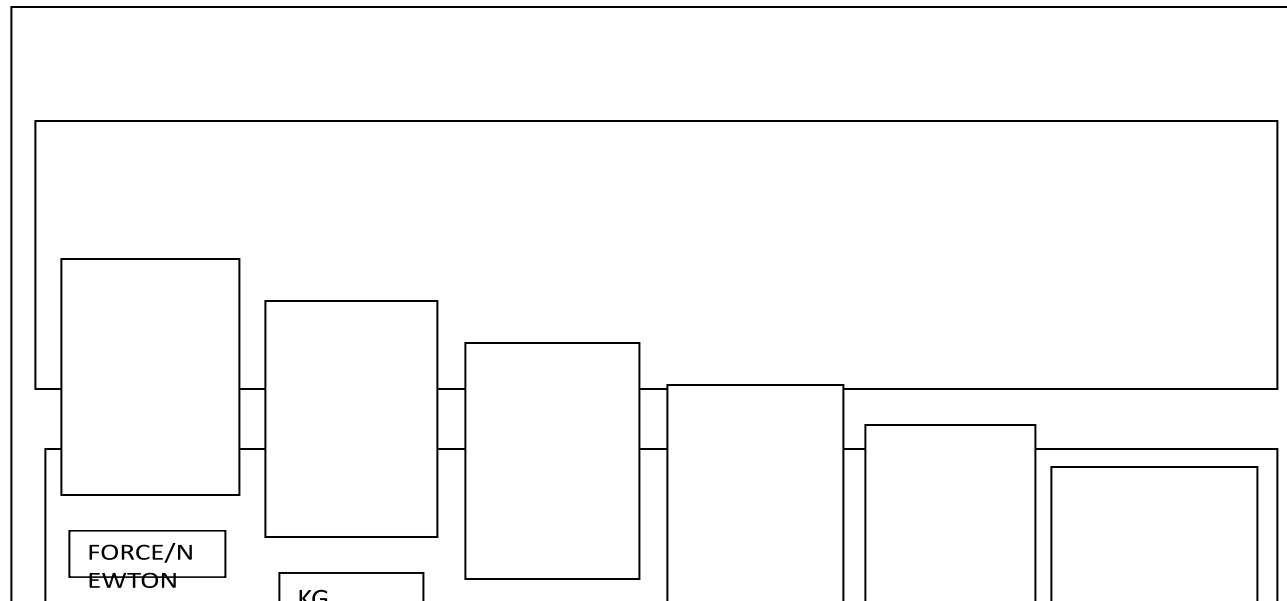
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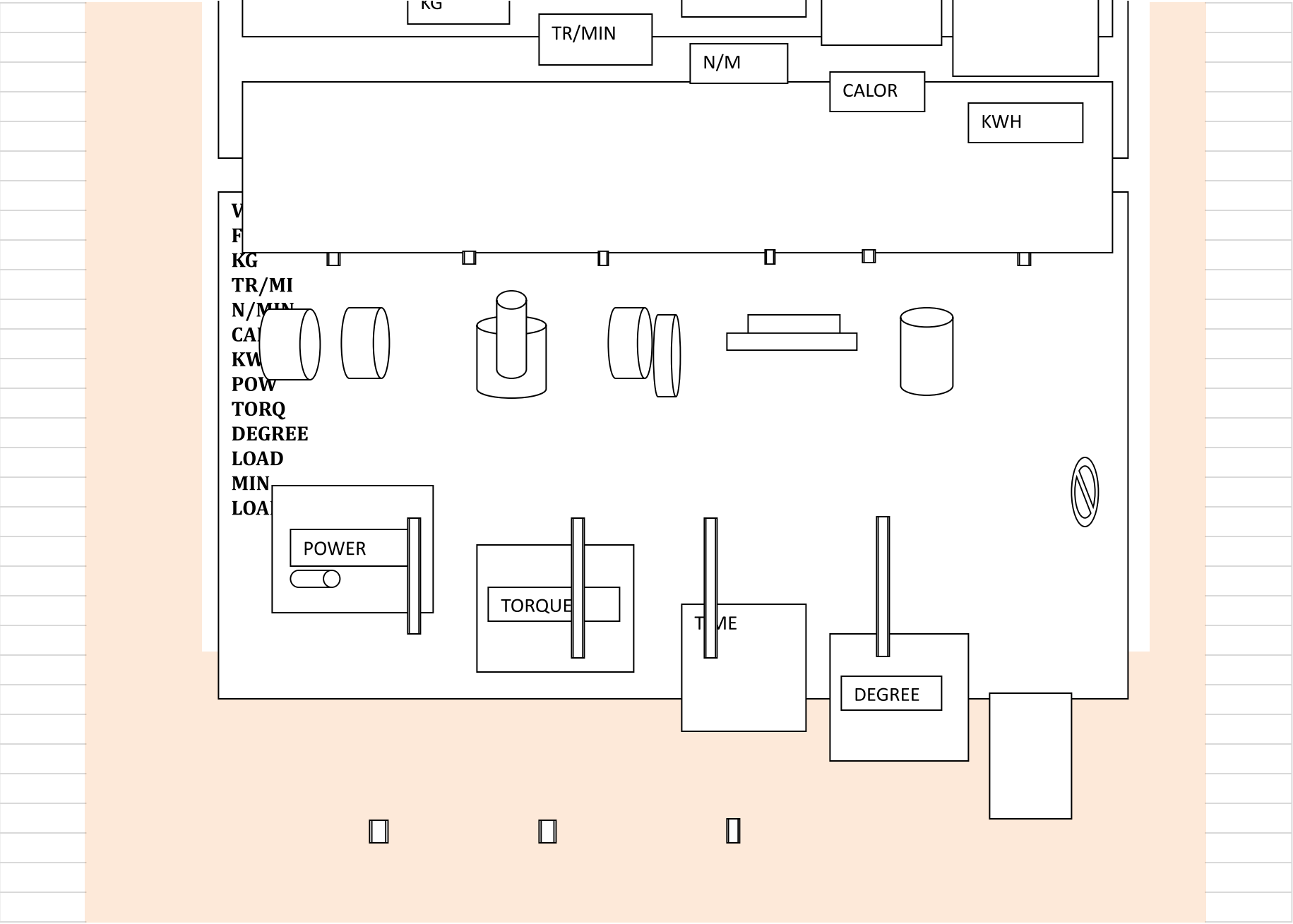
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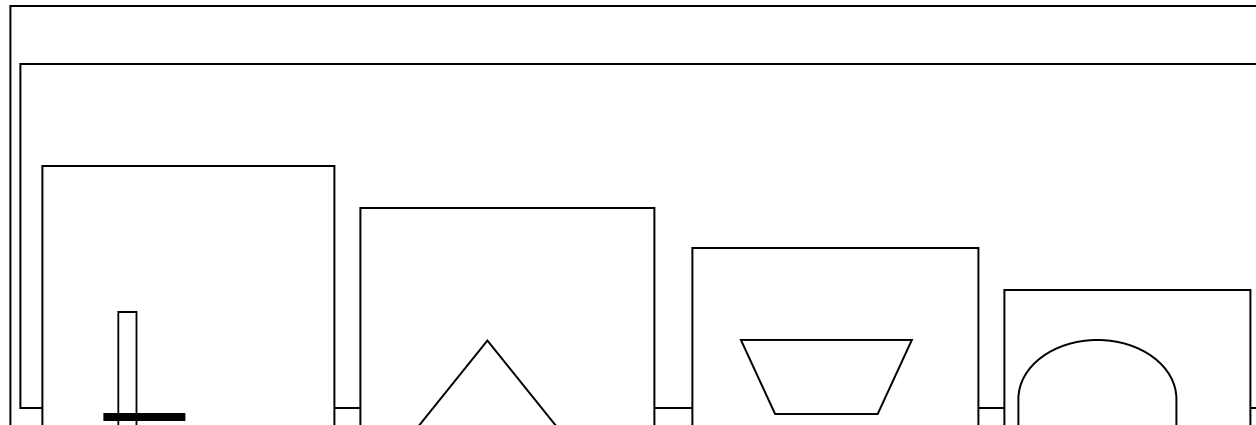


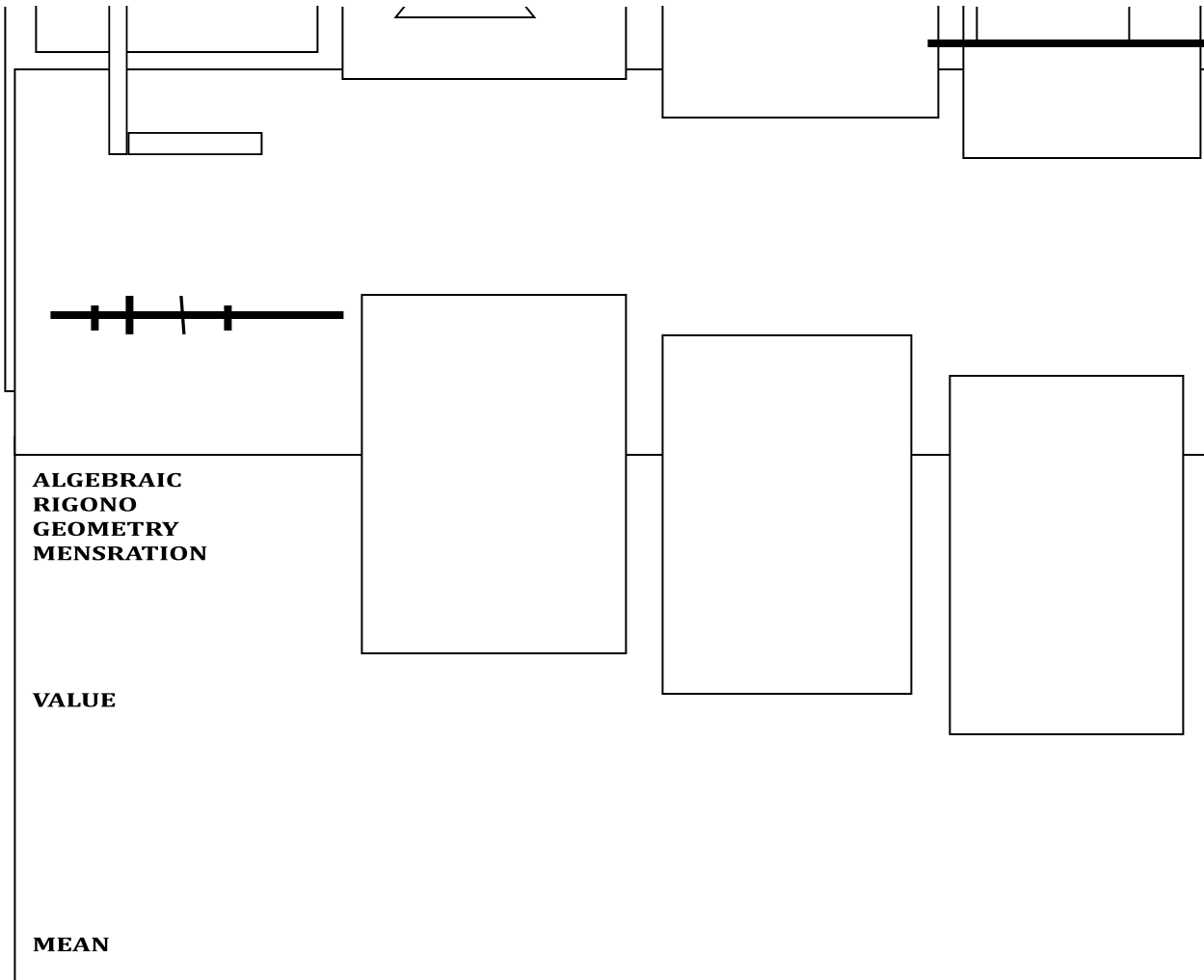


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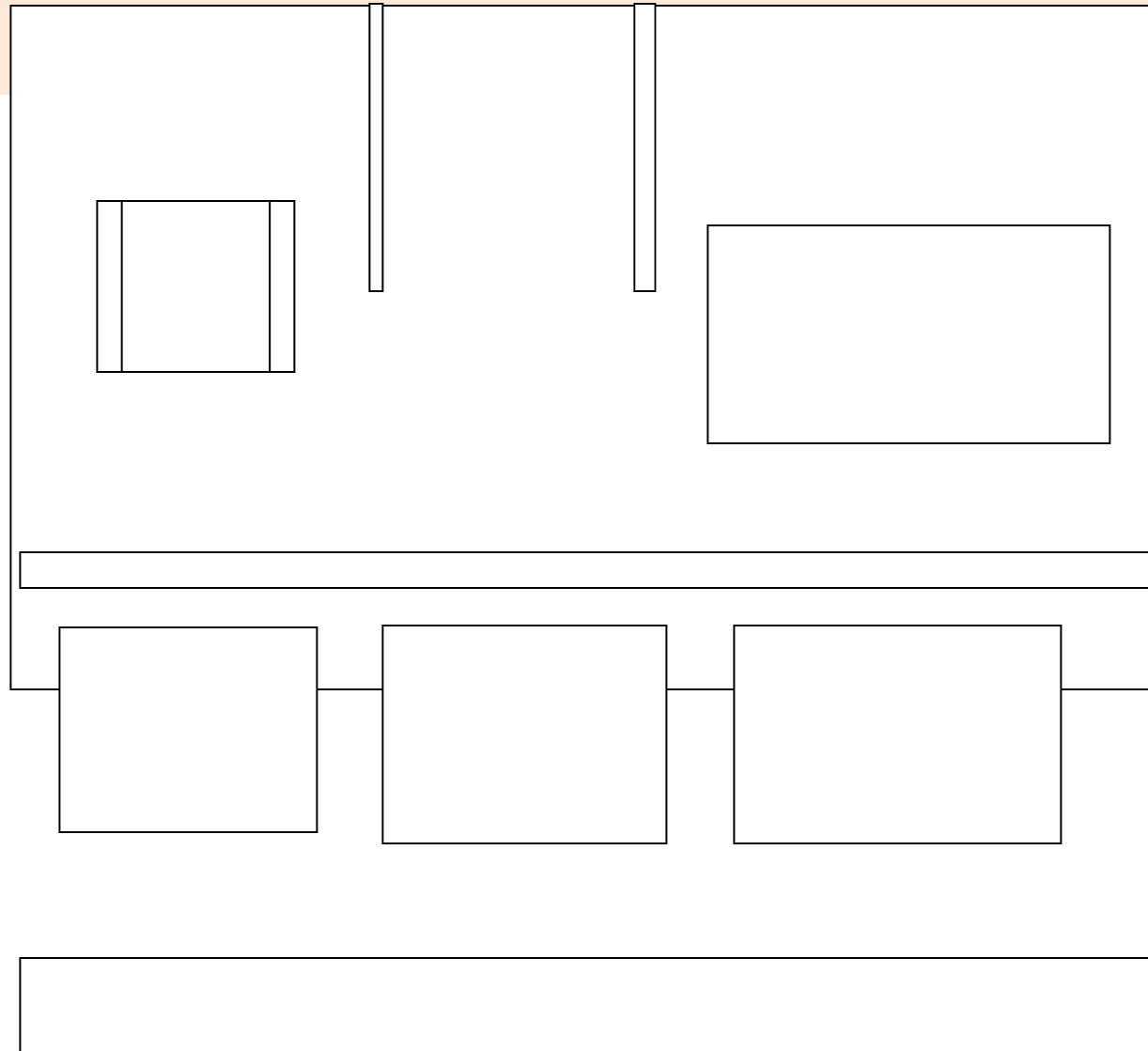
7. Mathematics tools





8.Engineering drawings .
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Exam , test circular

INSTRUCTIONS AND INFORMATION

.

Answer ALL the questions.

Read ALL the questions carefully. Number the answers according to the numbering system used in this question paper.

Round

off ALL calculations to THREE decimal places.

Use the correct symbols and units.

Start each question on a NEW page.

Keep subsections of questions together.

ALL circuit diagrams and vector diag

rams must be at least one third of a page

and must be fully labelled.

Write neatly and legibly.

QUESTION 1

1.1 Draw and explain the operation of a Ward Leonard control system, controlling the speed and direction of a large DC shunt motor.

-7

1.2 A 250 V, DC series motor runs at 1 000 r/min while drawing a current of 40 amperes from the supply. The resistances of the armature and series field are 0,25 ohms and 0,1 ohms respectively. Calculate the speed at which the motor will run if a 0,2 ohm resistor is connected in parallel with the field coils. Assume that there is a 20% increase in the torque and that the field coils are unsaturated.

(2) 1.3 Draw TWO fully labelled circuit diagrams used to solve

QUESTION

1.2, clearly showing the current flow in both diagrams.

QUESTION

2

An alternating voltage represented by the expression; $v = 30 \sin (314t + 25^\circ) + 10 \sin (942t - 30^\circ)$ is applied to a resistor of 180 ohms in parallel with a capacitor of 25 micro

-

farads.

Determine:

2.1

An expression for the instantaneous value of current

-8

2.2 The power factor of the circuit state the nature of the power factor The energy dissipated in the circuit in 10 milli

-

seconds

-1

2.4 Draw a large vector diagram clearly showing the voltages and currents for the

fundamental as well as the harmonic component.

QUESTION 3

3.1

State TWO constant losses occurring in a transformer and state precisely where each occurs.

3.2

A 250 kVA, 3 300/240 V, single

-phase transformer produces a maximum efficiency of 92% at 80% of fullload.

Calculate for a power factor of 0,85 lagging:



