

TECHNOLOGIES 3º ESO



Reference book: Tecnologies. Editorial OXFORD Serie Motriz

The exam questions are going to be extracted from this document.

1. ENERGY AND TRANSFORMATION

Ex. 1

Indicates the energy transformations that take place in:

- a) A mixer: E.electric → E.mechanical
- b) A gas cooker
- c) Fireworks
- d) Electric motor
- e) Combustion engine
- f) Electric stove
- g) Gas stove
- h) Lamp
- i) Speaker
- j) Microphone

Ex. 2

Give examples of devices where these energy transformations happen:

- a) Light → Electric: Photovoltaic panel
- b) Chemistry → Electrical:
- c) Mechanical → Thermal:
- d) Electric → Thermal:
- e) Electric → Sound:
- f) Electric → Light:
- g) Electric → Mechanical:
- h) Light → Thermal:
- i) Mechanical → Electrical:
- j) Chemistry → Mechanics:

Ex.3

From the list of appliances below, identify the types of energy they use:

Electrical, or chemical, or thermal, or light, or sound, or mechanical

- Washing machine
- Doorbell
- Light bulb
- Griddle
- Vitroceramic
- Computer
- Battery
- Gas stove

Ex. 4

Classify the following plants according to whether they are renewable or non-renewable: Hydraulic, tidal, combustion thermal, solar, nuclear and wind thermal.

Ex. 5

What role do the turbine and generator play in a hydroelectric power station?

Ex. 6

Can a tidal power station be running continuously? Why?

Ex. 7

What gadget makes rotate the generator of a thermal power station?

Ex.8

Can a tidal power station be located anywhere? What condition must it meet?

Ex. 9

Where can hydroelectric plants be installed?

2. EXCEL

Ex. 1

What are spreadsheets used for?

Ex. 2

What advantages has a spreadsheet over a calculator?

Ex. 3

What two differences do you find between Excel and Word?

Ex. 4

How are columns named in Excel? And rows?

Ex. 5

What is a cell? How are cells named in Excel?

Ex. 6

What elements can we introduce in an Excel cell?

Ex. 7

Point out which of the following expressions are correct; in the incorrect ones, write the correct one:

a) $B1 + B2$

b) $= 2C + 5C$

c) $= B1 + B2$

Ex. 8

What if you entered a formula in a cell without using the equal sign?

3. COMMUNICATION TECHNOLOGY

Ex. 1

Explain the differences between analog and digital signals

Ex. 2

Make a diagram of the means of transmission of electrical signals

Ex. 3

Explain how do a telegraph and telephone work

Ex. 4

Make an outline of the screen types to reproduce images

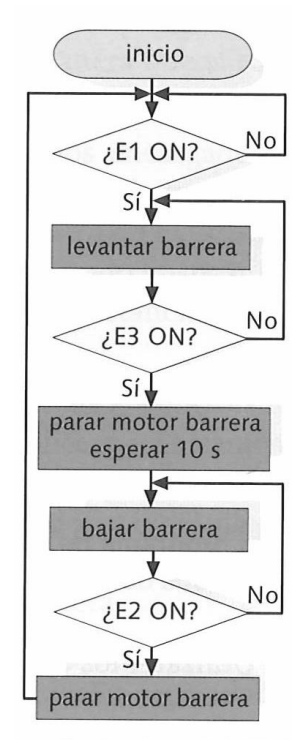
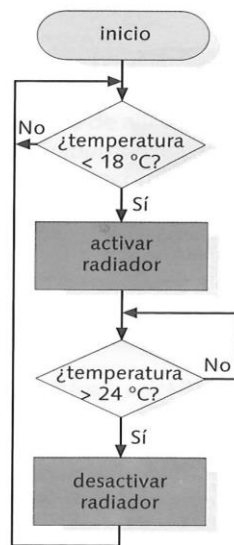
4. ROBOTICS

Ex. 1

Elements of a control system

Ex. 2

Explains the operations of the programs represented below.

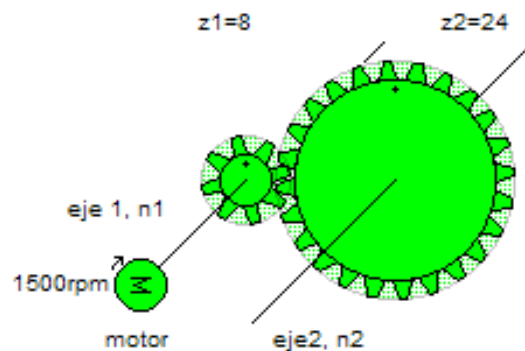


5. MOVEMENT TRANSMISSION MECHANISMS

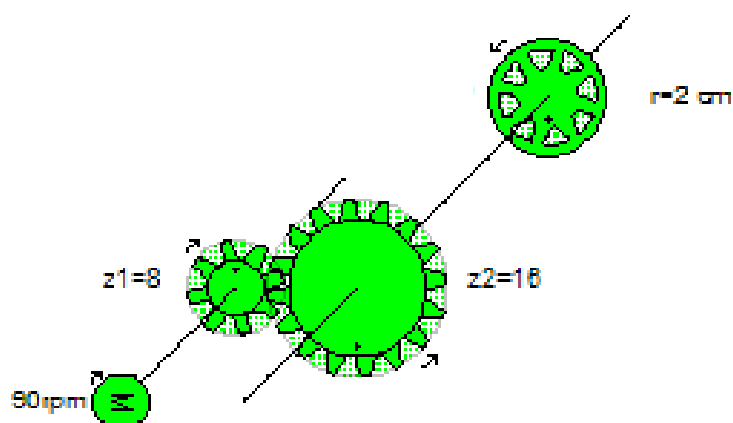
1. Calculate the speed (Km/h) at which a bicycle advances, knowing that its wheels rotate at 100 rpm, and that the radius of the wheel is 30 cm.

2. Calculate the velocity (rpm) at which the wheels of a bicycle with a radius of 30 cm rotate, knowing that it is moving at a speed of 40 km/h.

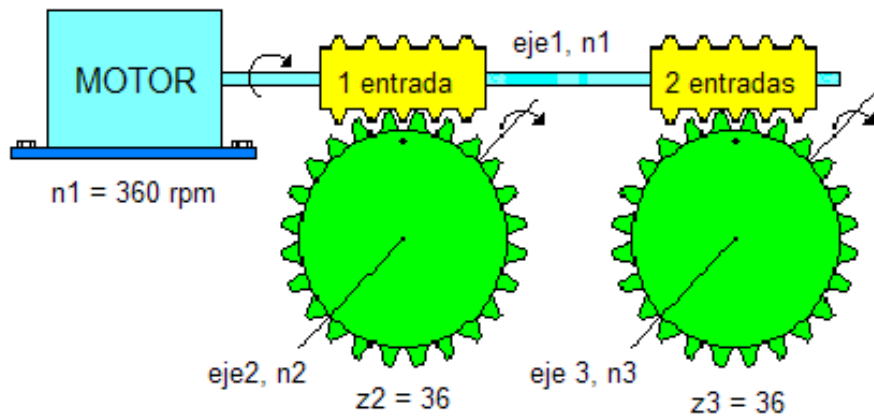
3. Calculate the transmission ratio of the system and the rotational speed of axis 2 knowing that the motor rotates at 1500 rpm.



4. The engine of a toy car rotates at 90 rpm. Would you know how to say at what speed in cm / s the vehicle circulates if the radius of its wheels is 2 cm taking into account that the system has a gearbox like the one shown in the figure?



5. How many turns will each of the wheels r knowing that the motor rotates at 360 rpm.



6. Calculate the rack speed in m / s knowing that the motor rotates at 100 rpm.

