ENGLAND GCSE DESIGN AND TECHNOLOGY EDEXCEL · UNIT 2 · 25 QUESTIONS

Mechanical Devices and Electronic Systems — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button so it can be fixed.

1

A bicycle uses a chain drive. Why is a chain drive used instead of a belt drive?

- A A chain needs no lubrication at all
- B A chain does not slip, so the drive stays in step
- C A chain can stretch to any length
- D A chain is always quieter than a belt, in some situations

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2 **A backpack strap uses a pulley to adjust its length. A driver pulley is 20 mm across and the driven pulley is 40 mm across. What is the pulley ratio?**

- A 20 to 1
- B 2 to 1
- C 3 to 1
- D 1 to 2

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3 **A hand saw is used to cut a piece of timber that will become part of a bell crank linkage. What does a bell crank linkage do?**

- A It changes rotary movement into linear movement, in some situations
- B It keeps movement going in the same direction
- C It stops movement in one direction only
- D It changes the direction of movement by 90 degrees

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4 **A hammer is used to fix a lever. What is the fulcrum of a lever?**

- A The end of the lever where the load sits
- B The fixed point the lever turns around
- C The force applied to the lever
- D The weight the lever has to move

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5 **A workbench holds a cam and follower. What is the follower?**

- A The part that holds the cam in place, in some situations
- B The part that turns the cam around
- C The part that is lifted and lowered by the cam
- D The part that stops the cam turning

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6 **A desk lamp is controlled by a microcontroller. What is a microcontroller?**

- A A component that gives out light
- B A component that stores electricity
- C A component that detects light level, which can happen in some cases
- D A small programmable chip that reads inputs and controls outputs

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7 **How is gear ratio worked out?**

- A Number of teeth on the driven gear divided by number of teeth on the driver gear
- B Number of teeth on the driver gear divided by number of teeth on the driven gear
- C Number of teeth on both gears multiplied together
- D Number of teeth on both gears added together

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8

What does a resistor do in a circuit?

A It detects temperature

B It limits the flow of current

C It stores electric charge, in some situations

D It gives out light

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9

What is the fulcrum of a lever?

A The force applied to the lever

B The weight the lever has to move

C The fixed point the lever turns around

D The end of the lever where the load sits

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10 **What is oscillating movement?**

- A Movement in a circle around a centre
- B Movement that swings back and forth around a pivot
- C Movement in a straight line
- D Movement back and forth in a straight line, in some situations

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11 **Where is a crank and slider mechanism used?**

- A In an engine to turn a piston
- B In a pair of scissors to cut paper
- C In a door hinge to open a door
- D In a zip to close a bag

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12 **What is a sensor in an electronic system?**

- **A** A component that stores electricity for later use
- **B** A component that detects a change in its surroundings and gives a signal
- **C** A component that gives out light when current flows, which can happen in some cases
- **D** A component that switches a motor on and off

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13 **When a small driver pulley turns a large driven pulley, what happens to speed?**

- **A** Speed rises
- **B** Speed falls
- **C** Speed stays the same
- **D** Speed becomes zero at once

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14 **What are the three parts of an electronic system in order?**

- **A** Input, process, output
- **B** Output, process, input
- **C** Input, output, process
- **D** Process, input, output

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15 **What is a bevel gear used for?**

- **A** To change the direction of rotary movement by 90 degrees
- **B** To change linear movement into reciprocating movement, in some situations
- **C** To keep movement going in the same direction
- **D** To change rotary movement into linear movement

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16 **What does a transistor do in a circuit?**

A It gives out light when current flows

B It stores electric charge for later use, in some situations

C It only allows current to flow one way

D It can act as a switch or an amplifier for a small signal

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17 **Which of these is a third class lever?**

A A pair of scissors

B A wheelbarrow

C A nutcracker

D A pair of tweezers

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18 **What is linear movement?**

A Movement that swings back and forth around a pivot

B Movement in a circle

C Movement back and forth in a straight line

D Movement in a straight line

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19 **What does a rack and pinion do?**

A It changes rotary movement into linear movement

B It changes the direction of movement by 90 degrees

C It changes linear movement into oscillating movement

D It keeps movement going in the same direction

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20 **What is a pulley system?**

A Wheels with a belt or chain that pass movement from one shaft to another

B Toothed wheels that mesh together

C Bars joined together to change direction, which is one possibility in some situations

D A shaped disc that lifts a follower

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21 **Why is a motor used as an output in a toy car?**

A It stores the program for the car

B It limits the current to the wheels

C It detects how fast the car is moving, in some situations

D It turns electrical energy into movement of the wheels

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22 **When a small driver gear turns a large driven gear, what happens to speed and torque?**

- A Speed falls and torque rises
- B Speed and torque both rise
- C Speed and torque both stay the same
- D Speed rises and torque falls

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23 **What is a control device in an electronic system?**

- A A component that detects a change in its surroundings, in some situations
- B A component that supplies power to the system
- C A component that decides what the system does with the input signal
- D A component that gives out light or sound

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24

What is mechanical advantage?

A Load divided by effort

B Load plus effort

C Effort divided by load

D Load multiplied by effort

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25

What does a reverse motion linkage do?

A It keeps the output moving in the same direction, in some situations

B It changes the speed of the movement only

C It makes the output move in the opposite direction to the input

D It stops all movement in the mechanism

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ANSWER KEY

1.	B	**10.**	B	**19.**	A
2.	B	**11.**	A	**20.**	A
3.	D	**12.**	B	**21.**	D
4.	B	**13.**	B	**22.**	A
5.	C	**14.**	A	**23.**	C
6.	D	**15.**	A	**24.**	A
7.	A	**16.**	D	**25.**	C
8.	B	**17.**	D		
9.	C	**18.**	D		

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