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

Systems and Mechanical Devices — 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 wooden chair has a reclining back worked by a linkage. What does a linkage do?

A It stores energy for later use

B It measures light or temperature

C It changes the direction or type of movement

D It joins two materials into a composite, in some situations

Understand It with Pulse

Flag a mistake

2 **A hand saw is used to cut a plank held in a vice. The vice handle is a class 1 lever. Where is the fulcrum in a class 1 lever?**

- A Between the fulcrum and the load only
- B At the same end as the effort
- C At the same end as the load
- D Between the load and the effort

Understand It with Pulse | Flag a mistake

3 **A mobile phone screen gets brighter in sunlight. Which sensor senses the light level?**

- A A buzzer used as an output
- B A pressure sensor
- C An LDR
- D A thermistor

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4 **A desk lamp has an anglepoise arm that keeps the shade level as it moves. Which linkage does this?**

- A A treadle linkage
- B A parallel motion linkage
- C A reverse motion linkage, in some situations
- D A bell crank linkage

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5 **A hammer is used to tap a chisel. The chisel moves in a straight line. What type of movement is this?**

- A Oscillating
- B Linear
- C Rotary
- D Reciprocating

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6 **An electric kettle has a display that shows the temperature. Why is a display used as an output?**

- A It shows numbers or words for the user to read
- B It gives a light signal the user can see
- C It gives movement to turn a wheel
- D It gives a sound warning the user can hear, in some situations

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7 **What is rotary movement?**

- A Movement back and forth in a straight line
- B Movement back and forth in an arc
- C Movement turning in a circle
- D Movement in a straight line

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8 **Why is a buzzer used as an output?**

- A It shows numbers and words on a screen
- B It gives a light signal the user can see, in some situations
- C It gives a sound warning the user can hear
- D It gives movement to turn a wheel

Understand It with Pulse | Flag a mistake

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

- A It changes the direction of movement by 90 degrees, in some situations
- B It keeps two parts parallel as they move
- C It turns rotary movement into movement in a straight line
- D It turns movement in a straight line into a circle

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10

Where is a treadle linkage used?

A In a car windscreen wiper motor, in some situations

B In an anglepoise lamp arm

C In an old sewing machine worked by foot

D In a bicycle brake

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11

Why are sensors used in a system?

A So the system can work with no output at all, in some situations

B So the system can react to changes without a person

C So the system never needs any power to run

D So the system never needs to be tested

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12 **A driver pulley is 40 mm across and the driven pulley is 80 mm across. The driver turns at 100 rpm. How fast does the driven pulley turn?**

- A 25 rpm
- B 500 rpm
- C 100 rpm
- D 50 rpm

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13 **What is meant by the toughness of a material?**

- A How well it returns to shape after being stretched, in some situations
- B How well it soaks up a sudden knock without breaking
- C How well it resists being scratched or dented
- D How well it resists a force without breaking

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14 **A driver gear turns at 90 rpm. The driven gear has 2 times as many teeth. How fast does the driven gear turn?**

- A 45 rpm
- B 22 rpm
- C 450 rpm
- D 90 rpm

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15 **In a class 2 lever, where is the load?**

- A Between the fulcrum and the effort
- B At the same end as the fulcrum
- C Between the load and the effort
- D Beyond the effort at the far end, in some situations

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16 **What does a snail cam do?**

A It gives a smooth rise and fall as it turns

B It gives a slow rise and then a sudden drop

C It gives a pause and then a quick lift

D It gives a steady back and forth movement

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17 **A load of 160 N is lifted with an effort of 40 N. What is the mechanical advantage?**

A 5

B 3

C 40

D 4

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18 **A driver pulley is 50 mm across and the driven pulley is 100 mm across. The driver turns at 100 rpm. How fast does the driven pulley turn?**

- A 500 rpm
- B 50 rpm
- C 100 rpm
- D 25 rpm

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19 **What is the output of a system?**

- A The energy wasted by the system
- B What the system does with the input
- C What is fed into the system at the start
- D The result the system gives at the end

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20 **A piston moves back and forth in a cylinder. What type of movement is this?**

A Linear

B Reciprocating

C Oscillating, in some situations

D Rotary

Understand It with Pulse | Flag a mistake

21 **What is a microcontroller?**

A A motor that turns a wheel in a system

B A sensor that measures light or heat

C A large screen that shows numbers and words, in some situations

D A small programmable chip that controls a system

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22 **Why are worm gears used?**

A They give a small speed reduction in a large space

B They change movement into a straight line

C They keep two parts parallel as they move

D They give a large speed reduction in a small space

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23 **What does a bell crank linkage do?**

A It changes the direction of movement through 90 degrees

B It keeps parts parallel as they move

C It makes the output move the opposite way to the input, in some situations

D It turns rotary movement into a straight line

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24 Where is an LDR used?

- A In a burglar alarm mat under a carpet, in some situations
- B In a fridge that keeps food cold
- C In automatic lights that switch on when it gets dark
- D In a motor that turns a wheel

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25 What is a pulley?

- A A rotating shape that moves a follower
- B A bar that pivots around a fixed point
- C A wheel with teeth that turns another wheel, in some situations
- D A wheel with a belt or rope that transfers rotary movement

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ANSWER KEY

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

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