**Design & Technology**

**AQA A-Level** Logo

Description automatically generated with low confidence

**Materials and their applications**

**Materials required for questions**

* Pencil
* Rubber
* Calculator

**Instructions**

* Use black ink or ball-point pen
* Try answer all questions
* Use the space provided to answer questions
* Calculators can be used if necessary
* For the multiple choice questions, circle your answer

**Advice**

* Marks for each question are in brackets
* Read each question fully
* Try to answer every question
* Don’t spend too much time on one question

**Good luck!**

**Q1.** What word describes a material that can be drawn out into long thin wires?

**A** Malleable

**B** Ductile

**C** Brittle

**Q2.** Which property describes the ability of a material to withstand sudden and shock loading without fracturing?

**A** Toughness

**B** Hardness

**C** Malleability

**Q3.** A material that resists abrasive wear and indentation has which one of the following properties?

**A** Elasticity

**B** Hardness

**C** Plasticity

**Q4.** Shear strength is defined as:

**A** The ability of a material to return to its original shape once a deforming force is removed

**B** The ability of a material or joint to withstand being pulled apart

**C** The ability of a material to withstand being squashed

**Q5.** Describe two physical properties of gold **(2 marks)**

1.

2.

**Q6.** Define the following material properties **(2 marks)**

Thermal conductivity

Toughness

**Q7.** Define the following material properties **(2 marks)**

Malleability

Elasticity

**Q8**. Define the following material working characteristics **(1 mark)**

Hardness

**Answers**

**Q1**. A

**Q2**. A

**Q3**. B

**Q4**. B

**Q5.**

Gold:

* is an excellent conductor of electricity
* is an excellent conductor of heat
* is a particularly heavy metal with a high density
* has excellent resistance to corrosion

**Q6.**

Thermal conductivity

* A measure of how successfully heat energy can travel through a material.

Toughness

* A material’s ability to absorb impact force without fracture.

**Q7.**

Malleability

* A material’s ability to be permanently deformed or shaped by impact, rolling or pressing without cracking.

Elasticity

* A material’s ability to be deformed and return to its original when the force is removed.

**Q8.**

Hardness

* is the ability of a material to resist abrasion/ scratching/indentation.