**Design & Technology**

**AQA GCSE** Logo

Description automatically generated with low confidence

**Changing magnitude and direction of force**

**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.** Which lever has the fulcrum between the effort and the load?

**A** First-order lever

**B** Second-order lever

**C** Third-order lever

**Q2.** A wheelbarrow is an example of which type of lever?

**A** First-order lever

**B** Second-order lever

**C** Third-order lever

**Q3.** In a third-order lever, the effort is located:

**A** Between the fulcrum and the load

**B** At one end with the fulcrum in the middle

**C** At the fulcrum itself

**Q4.** A bell crank changes the direction of motion by:

**A** 45°

**B** 90°

**C** 180°

**Q5.** Push/pull linkages are primarily used for:

**A** Converting rotary motion to linear motion

**B** Changing the direction of motion

**C** Both of the above

**Q6.** Which component converts rotary motion into linear motion in a CAM system?

**A** Gear

**B** Follower

**C** Belt

**Q7.** In a simple gear train, if the driver gear has 20 teeth and the driven gear has 40 teeth, the gear ratio is:

**A** 1:2

**B** 2:1

**C** 4:1

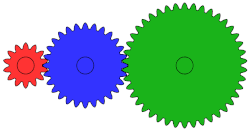
**Q8.** Pulleys and belts are commonly used to:

**A** Change the speed of rotation

**B** Transfer motion between non-parallel shafts

**C** Change the speed of rotation

**Q9.** Describe the direction and speed of movement of part C in the gear train shown below when gear A turns clockwise **(2 marks)**



C

B

A

**Answers**

**Q1**. A

**Q2**. B

**Q3**. A

**Q4**. B

**Q5**. C

**Q6**. B

**Q7**. A

**Q8**. C

**Q9.**

* Gear C turns the slowest of all (as it has the most teeth)
* C goes slower that A
* Takes longer time to rotate