Questions on Gears for AQA GCSE Physics

1. A small gear is connected to a larger gear. Describe what happens to the speed of the larger gear.
2. A large gear is connected to a smaller gear. Describe what happens to the speed of the smaller gear.
3. Gear A turns clockwise and is touching Gear B. What direction does Gear B turn?
4. Gear A has 10 teeth and Gear B has 20 teeth. Which gear turns more slowly?
5. Gear A has 12 teeth and Gear B has 36 teeth. Gear A is the input gear. How many times does Gear A turn for Gear B to turn once?
6. Gear A has 8 teeth and Gear B has 32 teeth. Gear A turns 4 times. How many times does Gear B turn?
7. A motor turns a small gear quickly. This small gear turns a larger gear. Explain what happens to the speed of the larger gear.
8. A gear system reduces the speed of the output gear. What happens to the turning force at the output?
9. A cyclist uses a low gear when going uphill. Explain why a lower gear makes it easier to climb.
10. A drill motor spins very fast but does not produce much turning force. Explain why gears are used inside the drill.
11. A gear turns around its centre. What is the pivot point of the gear?
12. A chain pulls on the edge of a gear. Explain why this produces a turning effect.
13. A force is applied further away from the centre of a gear. What happens to the moment?
14. A chain pulls with a force of 50 N on a gear with a radius of 0.10 m. Calculate the moment.
15. A chain pulls with a force of 80 N on a gear with a radius of 0.15 m. Calculate the moment.
16. Gear A has a radius of 0.05 m. Gear B has a radius of 0.20 m. The same force acts on both gears. Which gear produces the bigger moment?

17. A force of 60 N acts on a gear with a radius of 0.08 m. Calculate the moment on the gear.
18. A gear produces a moment of 10 Nm. The force acting on it is 100 N. Calculate the radius of the gear.
19. A small input gear has a radius of 0.04 m. A larger output gear has a radius of 0.12 m. The same force acts on both gears. Compare the moments produced.
20. A motor turns a small gear, which then turns a larger gear attached to a wheel. Explain why the wheel turns more slowly but with a larger turning effect.