

State exam questions from subject: **Drives and Gears**  
**AY 2023/2024**

1. Basic design of mechanical drives. Torques of mechanical drives. Torque characteristics of motors.
2. Basic design of mechanical drives. Torques of mechanical drives. Speed dependent load torque.
3. Basic design of mechanical drives. Torques of mechanical drives. Load torque depending on twist angle, path and time.
4. Basic design of mechanical drives. Torques of mechanical drives. Accelerating torque.
5. Operating modes of drives, operation in four quadrants. Basic dynamic equation. Characteristic of steady-state operation. Lifting and braking a load at constant speed.
6. Operating modes of drives, operation in four quadrants. Basic dynamic equation. Characteristic of transient states by lifting (quadrants I and II).
7. Operating modes of drives, operation in four quadrants. Basic dynamic equation. Characteristic of transient states by lowering (quadrants III and IV).
8. Operating modes of drives, operation in four quadrants. Basic dynamic equation. Characteristic of transient states when motor is off, self-braking by lifting and self-accelerating by lowering the weight.
9. Reduction of drive parameters. Equivalent kinematic parameters and load torque on the motor shaft by given transmission ratio.
10. Reduction of drive parameters. Equivalent kinematic parameters and mass moment of inertia on the motor shaft by given transmission ratio.
11. Reduction of drive parameters. Reducing linear to rotational motion, determining equivalent torque.
12. Reduction of drive parameters. Reducing linear to rotational motion, determining equivalent mass moment of inertia.
13. Characteristics of load torque transmitted by flexible coupling in steady state with harmonic load.
14. Characteristics of load torque transmitted by flexible coupling by startup of mechanical system.
15. Characteristics of load torque transmitted by flexible coupling by sudden stopping of mechanical system.

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