TECHNICAL UNIVERSITY OF KOŠICE
Faculty of Mechanical Engineering

Institute of Design Machine and Process Engineering
Department of Construction and Transport Engineering
Letná 9/B | 042 00 Košice

State exam questions from subject: **Drives and Gears**
AY 2020/2021

1. Mechanical drives definition. Mechanical drive consisting of *Motor*, *Coupling 1*, *Connecting Shaft*, *Coupling 2*, *Two-stage Spur Gearbox*, *Coupling 3* and *Driven Machine*. Characteristics of power, efficiency and gear ratio.
2. Mechanical drives. Elements of drives. Mechanical characteristics of electric drives.
3. Characteristics of load torque transmitted by flexible coupling in steady state with harmonic load.
4. Elements of mechanical drives. Torques of mechanical drives. Characteristics of steady state and transient states.
5. Characteristics of load torque transmitted by flexible coupling by sudden stopping of mechanical system.
6. One stage spur and bevel gear. Characteristics of power, efficiency and gear ratio.
7. Characteristics of load torque transmitted by flexible coupling by startup of mechanical system.
8. Two stage spur gear transmission. Characteristics of power, efficiency and gear ratio.
9. Explain how to select motor with proper power driving a mechanical system if output speed n_D and output torque T_D are given.
10. Explain the basic principle of computing acceleration torque on motor shaft – equivalent mass moment inertia on the motor shaft.
11. Characteristics of acceleration torque T_a. Mass moment of inertia I.
12. Equivalent mass moment inertia on the motor shaft with considering and without considering mechanical losses.
13. Fan characteristics, load torque and power courses depending on speed (T_D/ω a P/ω). Name the devices having fan characteristics**.**
14. Explain the principle of computing equivalent torque on motor shaft considering mechanical losses for rotational and translational motion.
15. Explain the basic principle of computing acceleration torque on motor shaft – equivalent mass moment inertia on the motor shaft.

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guarantee