TECHNICKÁ UNIVERZITA V KOŠICIACH
Strojnícka fakulta

Ústav mechaniky, energetického a konštrukčného inžinierstva
Katedra konštrukčného a dopravného inžinierstva
Letná 9/B | 042 00 Košice

State exam questions from subject: **Drives and Gears**
AY 2024/2025

1. a) Machine drive systems. Block diagram of the drive system.
   b) Classification of working machines according to the type of the loading - crane characteristics.
2. a) Machine drive systems – defining the basic concepts of a drive system and its block diagram.
   b) Classification of working machines according to the type of the loading - fan characteristics.
3. a) Machine drive systems – defining the basic concepts of a drive system and its block diagram.
   b) Classification of working machines according to the type of the loading - traction characteristics.
4. a) Energy machines – defining basic concepts, types of energy and classification of energy machines.
   b) Engines – definition, classification. Internal combustion engines.
5. a) Kinematics of drive system, definition of kinematic quantities.
   b) Drive operating modes - motion states of drive system. Linear start-up and stop.
6. a) Drive operating modes, description of drive motion states.
   b) Drive operating modes - motion states of drive system. Parabolic start-up and stop.
7. a) Kinematic diagram of the drive system and kinematic parameters of the drive system.
   b) Reduction of torque and kinematic characteristics of the drive system - reduction to the motor shaft without taking into account efficiency.
8. a) Dynamic od drive system, drive parameters.
   b) Reduction of torque and kinematic characteristics of the drive system - reduction to the motor shaft with taking into account efficiency.
9. a) Mechanical energy transmissions, mechanical transmissions – definition and classification.
   b) Operating parameters of mechanical transmissions.
10. a) Gear transmission – definition, classification.
    b) Spur and worm gears.
11. a) Gear transmissions – basic transmission parameters (power, gear ratio, efficiency).
    b) Bevel gears, bevel differential.
12. a) Mechanical transmission – description and classification, gear ratio of multi - stage transmission.
    b) Planetary gearboxes.
13. a) Mechanical transmission – defining basic parameters.
    b) Harmonic and cycloidal gearboxes.
14. a) Kinematic parameters of transmissions.
    b) Chain drives.
15. a) Friction transmissions – defining basic parameters.
    b) Belt drives.
16. a) Continuously variable transmission.
    b) Friction transmissions with continuously variable transmission ratio, determination of the control range.
17. a) Mechanical energy transmissions – distribution and determination of power, gear ratio, gear efficiency.
    b) Hydrodynamic transmissions – Hydrodynamic torque converters.

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Guarantee of the subject