



Questions for state exams in the subject: Embedded systems of mechatronic systems
Study program: Industrial mechatronics **AR: 2020/2021**

1. Norm IEC 61131, programming languages, functions a function blocks, CTUD, TP, F_TRIG.
2. Logic functions, Truth table, disjunctive normal form, function blocks R_TRIG, TOF, CTD.
3. Karnaugh map, conjunctive normal form, minimization of logic function, function blocks CTU, TON, TP.
4. Programming language Ladder Diagram, basic elements of LD, logic functions in LD: AND, OR, NOT, NAND, NOR, XOR.
5. Basic types of pneumatic actuators, motion control of double acting pneumatic actuator by PLC, scheme, control logic.
6. Pneumatic mechanisms, advantages / disadvantages, motion control of single acting pneumatic actuator by PLC, scheme, control logic.
7. Basic characteristics of microprocessor and microcontroller. Utilization of microcontrollers.
8. Bit operations, masking of the bits, logical levels (code in language C). TTL logic levels.
9. Digital input, detection of logical level of digital input signal, registers.
10. Microcontroller interrupt system, external interrupt source.
11. Counter / Timer Timer0 of microcontroller ATmega16.
12. USART communication.
13. Fast PWM mode.
14. Phase correct PWM mode.
15. Position control of servomechanism.

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