

**Пререлік теоретичних питань для проведення
модульної контрольної роботи**

ННАКІ
Кафедра **Машинознавства**

ЗАТВЕРДЖУЮ

Зав.кафедри _____ (Кіндрачук М.В.)
(підпис) (ІПБ)
« _____ » _____ 2016

МОДУЛЬНА КОНТРОЛЬНА РОБОТА №1
з дисципліни «**Метрологія та стандартизація**»

Розробник **к.т.н., доцент, Башта О.В.**
(наук.ступінь, вч.звання, П.І.Б. викладача)

1. Subject of metrology
2. Physical quantities and their units. Name of the base physical quantities of SI system.
3. What are criteria for selection of measurement instrument?
4. What is the calibration of measuring instrument?
5. Industrial and scientific metrology. Legal metrology/
6. Accuracy class.
7. Give definitions of: accuracy, precision, reliability, traceability.
8. What is reproducibility and explain the difference between reproducibility and repeatability.
9. 4 main reasons for having instrument calibration.
10. Basic metrology characteristics of the measurement instruments.
11. What is the null method of measurements?
12. What is the true value and what is error. Explain the sources of the measurement errors.
13. Give definition of random error and explain its sources.
14. Give definition of systematic error and explain its sources.
15. How to minimize random and systematic errors?
16. What does it mean the instrument's accuracy class is 1.5 ?
17. What is the uncertainty of measurements? How should we write down the result of measurement/
18. How can we estimate the measurement result uncertainty? Give an example/
19. What is the precision of measurement data? Give the example.
20. To write influencing factors and explain what is the source of uncertainty of test piece.
21. What is an accuracy of measurement data? Give the example.
22. Write types of influencing factors and explain operation influencing factor.
23. Standard. Its definition. Explain the secondary and working standard.
24. Which measuring instruments did you know? Examine the working principle of one of them.
25. Give the definition to the traceability and calibration. Explain the difference.
26. Writing unit symbols and the values of quantities.
27. Different systems of measurement units.
28. What is the SI system? Write the basic units.
29. Measurement. Measurement methods.
30. Understanding of accuracy in the measurement.
31. Describe the traceability of measurement?
32. Technical measurement. Size and value of physical quantity.
33. Name the basic issues of metrology?
34. Reasons of the instruments calibration?

35. Define the measurement and the measurant.
36. Suppose that some thermometers are available: a) 0 - 99°C, b) 0 - 199°C, c) 0 - 99,9°C, d) 0 - 199,9 °C. What are their resolutions? Which of them are not suitable for measurement the water boiling temperature? Why?
37. Subject fields and subfields in scientific metrology.
38. Why do we use the international system of quantities?
39. Reliable measurement: accuracy, precision, reproducibility. Define the terms.
40. Explain the difference between the basic and derivative SI units.
41. Give examples of measured and evaluated quantities.
42. Explain the difference between the measurement instrument and the measurement converter.