Preface

The "Optics" is the fourth section of general physics course, and the performance of laboratory works on the topic is the corresponding part of the general physical practice works. Questions referred to importance of the conducting of the physical experiment itself, obtaining the measurement results and their mathematical processing, building graphs, etc., are not needed to be pointed here, because they were considered in previous sections of physical practice.

However, when solving optical problems there is a certain specificity, which should be paid attention. Firstly, these are non-contact methods for measuring linear parameters, nodes, temperatures, etc., which allows to achieve greater accuracy than conventional instrumental measurements by caliper, micrometer, goniometer and other instruments can give.

Optical observations of objects and phenomena are usually carried out using eyepieces, telescopes and microscopes. In general, the optical measuring system of such setups must be strictly centered, that is, all their parts should be placed on the same axis. Therefore, before starting the measurements, one should adjust the optical parts of the setup.

In present textbook, the questions of adjusting of optical setups is properly discussed in contrast to the widely available and well-known descriptions of the preparation of optical setups. This is due to the fact that when conducting physical practice classes there is inevitably some advance in performing laboratory work as compared to studying a theoretical course.

At the beginning of each work, based on the specificity of their implementation, a short theoretical material, which describes the underlying physical phenomenon and the derivations of the basic relationships necessary to perform the experiment and determine the desired quantities are given.

The feature of performing laboratory works is that a concentrated light flux enters the eye of the observer. Therefore, the observer should take appropriate precautions when performing measurements.

This textbook fully meets the requirements of the general physics course program in the "Optics" section for physical and technical faculties of universities and contains a description of fifteen laboratory works, performed at the Physical and Technical Faculty of al-Farabi KazNU.

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