

First Year B.Sc Optometry Degree Supplementary Examinations**October 2019****Physics & Chemistry****(2014 Scheme)****Time: 3 hrs****Max marks: 80**

- Answer all questions
- Write section A and section B in separate answer books (32 Pages). Do not mix up questions from section A and section B.

Q P Code: 115013**Section A – Physics****Marks: 40****Essay:****(10)**

1. Give an account of diffraction effect produced by a single slit. Explain what happens when the slit width is gradually increased and also when the screen is gradually moved away from the slit.

Short notes:**(3x5=15)**

2. What are monochromatic aberrations. Explain third order theory.
3. Obtain the system matrix for a thick lens.
4. Explain the working of a helium-neon laser.

Answer briefly:**(5x2=10)**

5. What is presbyopia and how it is corrected.
6. Explain with diagram the step index fibre and graded index fibre.
7. Obtain an expression for the resolving power of a microscope.
8. Why should the lens used in Newton's ring apparatus be of large radius of curvature and thin.
9. Distinguish between spatial coherence and temporal coherence.

Fill in the blanks:**(5x1=5)**

10. windows are used in gas lasers.
11. The phenomenon of causing two refracted rays by a crystal is called.. ..
12. A prism is made from calcite crystal.
13. Calcite and quartz are examples of crystals.
14. In the case of Lloyd's mirror the central fringe is

Q P Code: 116013**Section B – Chemistry****Marks: 40****Essay:****(10)**

1. The structures and names of products obtained when D-glucose and D-fructose with acetic anhydride, bromine water, conc. HNO_3 , NH_2OH and ammoniacal silver nitrate solution.

Short notes:**(3x5=15)**

2. Explain the inductive effect.
3. Explain the biological functions and deficiency disease caused by vitamin A
4. State the necessary condition for a compound to show geometrical isomerism. Illustrate your answer with maleic and fumaric acid as example.

Answer briefly:**(5x2=10)**

5. What is meant by chirality.
6. The shape of methane using hybridization.
7. What are emulsion. What are their different types. Give one example for each type.
8. What happens when benzene is treated with Cl_2 in the presence of U.V light.
9. What are the uses of benzene.

Fill in the blanks:**(5x1=5)**

10. The hybridization of carbon in benzene is
11. The process of separation of the constituent liquids of an emulsion is called
12. is the pro-vitamin for vitamin A
13. The separation of the constituents of a mixture by column chromatography depends upon their
14. The homolytic fission of C-C bond leads to the formation of
