Reg. No.: ……

First Year B.Sc Optometry Degree Examinations – November 2016

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. Explain the production, detection and behavior of circularly and elliptically polarized light.

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

2. Explain the working of a Lummer and Brodhum photometer.
3. Explain Fermat's principle. Using this principle show that light travels in a straight line.
4. Explain color of thin films.

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

5. Define simple harmonic motion and mention its characteristics.
6. Mention the uses of lasers in medicine.
7. Maxwell's equation in vector form.
8. What is chromatic aberration and how it is corrected.
9. What is astigmatism and how it is corrected.

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

10. Formation of color in thin film is due to …….
11. Phase difference = ……..path difference.
12. The formula for the resolving power of a microscope is …….
13. A zone plate has a number of foci which depends on the number of zones as well as the……

Q P Code: 116013 Section B – Chemistry Marks: 40

Essay: **(10)**

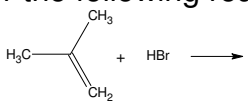
1. Illustrate inductive, electrometric and resonance effect taking place in organic molecules with suitable examples.

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

2. Draw all the possible optical isomers of tartaric acid. Propose the optically inactive structure of tartaric acid and explain the reason why it is optically inactive.
3. Explain with mechanisms •alkylation of benzene •nitration of benzene.
4. How carbohydrates are classified. Explain with suitable examples.

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

5. Describe keto-enol tautomerism with example.
6. Explain the chemistry behind the reaction of glucose with Fehling's solution.
7. Structure and functions of Vitamin C.
8. How will you explain the buffer action of blood.
9. Predict the major product obtained for the following reaction. Explain with mechanism



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

10. The method of separation of optical isomers from a mixture is called……
11. Sulphonation of benzene leads to the formation of …….
12. Polymer of α-glucose is known as……
13. Cyanocobalamin is the alternate name of ……vitamin.
14. The sweetest carbohydrate is ....."

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