

Reg. No.:

First Year B.Sc Optometry Degree supplementary Examinations – May 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 formation of Newton's rings. With necessary theory and derivation explain how you will determine the refractive index of a liquid.

Short notes:

(3x5=15)

2. Explain the working of a flicker photometer.
3. Explain the function of a nodal slide.
4. How will you produce and detect circularly polarized light..

Answer briefly:

(5x2=10)

5. What is meant by optical pumping.
6. What is optical activity.
7. Explain the blue color of sky.
8. What is third order theory.
9. Define power of a lens and give its unit.

Fill in the blanks:

(5x1=5)

10. S.I. unit of luminosity is
11. Light waves are waves.
12. The formula for the resolving power of a telescope is.....
13. The function of a zone plate is similar to that of alens.
14. A plane polarized light wave is a wave in which is everywhere confined to a single plane.

Q P Code: 116013

Section B – Chemistry

Marks: 40

Essay:

(10)

1. What is hybridization. Describe sp^3 , sp^2 and sp hybridization with appropriate examples.

Short notes:

(3x5=15)

2. Synthesis, structure and uses of sulpha drugs.
3. A disaccharide having molecular formula $C_{12}H_{22}O_{11}$ on treatment with dilute acid gave A and B. On treatment with phenylhydrazine A and B gave the same product C. When A is reacted with mild oxidizing agent obtained D. Identify the disaccharide. Mention the structures and names of A, B, C and D.
4. Explain the theory behind the determination of pH of a solution colourimetrically.

Answer briefly:

(5x2=10)

5. Differentiate between homolytic and heterolytic bond fissions.
6. Explain the mutarotation in glucose.
7. What happens when benzene is treated with \bullet chlorine in the presence of $FeCl_3$ and \bullet chlorine in the presence of light
8. Structure and uses of chloromycetin.
9. What are emulsions and mention examples. List any two uses of emulsions.

Fill in the blanks:

(5x1=5)

10. Nitronium ion is an example of
11. Stereoisomers that are not mirror images of one another and are non-superimposable on one another is called
12. Cellulose is a polymer of
13. hormone regulates the metabolism of carbohydrate in the body.
14. The pH of a buffer solution can be determined by equation.
