

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 a lens.
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 muta rotation in glucose.
7. What happens when benzene is treated with \bullet chlorine in the presence of $FeCl_3$ and \bullet chlorine in the presence 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.
