

UNIT - III

7. (a) Write note on the possibility of amplification on the basis of Einstein theory. 3
- (b) Explain two features of Lasers in detail. 3
8. (a) Calculate the coherence length for a laser beam for which the band width $\Delta\nu = 3000$ Hz. 2
- (b) Explain the RUBY laser with diagram in detail. 4

Roll No.

91540

B. Sc. (Hons.) Chemistry 2nd Sem. Latest Examination - April, 2018

PHYSICS-II (Optional)

Time : Three Hours]

[Maximum Marks : 40

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt five questions in all, selecting at least one from each Unit. Question No. 1 is compulsory.

1. (a) Why does pure semiconductor behave as an insulator ? 2 each
- (b) Draw the energy band diagram and explain in brief for semiconductors.
- (c) Why LED's consumes less power ?

- (d) Overall gain of a multistage amplifier is 100. When negative feedback applied the gain reduces to 10. Find the fraction of the output that is feedback to the input.
- (e) What is threshold condition in laser ?
- (f) What are main difference between He-Ne laser and Ruby laser ?
- (g) Define forward resistance of a diode. How you will calculate it.

UNIT - I

2. (a) Describe the Hall-effect. What properties of a semiconductor are determined from Hall effect experiment ? 5
- (b) Draw V-I characteristic for Zener Diode. 1
3. (a) What is meant by the potential barrier across a P-N Junction ? What is its significance ? 4

91540- (P-4)(Q-8)(18) (2)

- (b) Draw the circuit of various transistor configuration. 2

4. (a) Explain solar cell with diagram and how it differs from ordinary semiconductor diode ? 2, 2

- (b) Explain I.C. filter with diagram. 2

UNIT - II

5. (a) What do you understand by the term 'Thermal Stability' ? 2

- (b) Draw diagram for R-C coupled amplifier and explain in detail. 2, 2

6. (a) State the condition under which a feedback amplifier works as an oscillator. 2

- (b) Describe Hartley oscillator. Circuit and explain its action. 4

91540- (P-4)(Q-9)(18) (3)

P. T. O.