



**LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034**

**B.C.A., B.Sc., DEGREE EXAMINATION – COM.APP. & SCI. & MATHS, CHEMISTRY**

**FOURTH SEMESTER – NOVEMBER 2016**

**PH 4208 – APPLIED PHYSICS**

Date: 11-11-2016

Dept. No.

Max. : 100 Marks

Time: 01:00-04:00

**PART A**

Answer **ALL** questions:

10 x 2 = 20 marks

1. List any four characteristics of semiconductors.
2. What do you mean depletion region in a P-N junction diode.
3. Define Photo electric effect.
4. Give the principle of operation of IR emitter.
5. Calculate the output of an inverting Op-Amp if 1.5 V is given as input ( $R_{in} = 1k\Omega$  ;  $R_f = 1 k\Omega$  ).
6. Draw the circuit diagram of Unity follower.
7. Give the circuit diagram of 4 bit R-2R ladder D/A converter.
8. List the advantages of dual slope A/D converter.
9. What are the functioning of pin 3 and pin 4 in 555 timer?
10. Draw the input and output wave form of monostable multivibrator.

**PART B**

Answer any **FOUR** questions:

4 x 7.5 = 30 marks

11. Explain the structure of transistor with suitable diagram.
12. Describe the construction and working of a Light Dependent Resistance (LDR) with neat diagram. Give any two uses of it.
13. Construct a Summing amplifier and explain it with necessary theory.
14. Explain the parallel comparator method of A/D convertor.
15. Describe 555 timer as Schmitt trigger.
16. Describe the current components of transistor and mechanism of amplification.

**PART C**

Answer any **FOUR** questions:

4 x 12.5 = 50 marks

17. What are semiconductors? Explain the types of semiconductors elaborately.
18. Describe the principle of operation and characteristics of photo multiplier.
19. Explain the Integrator and differentiator of operational amplifier.
20. Describe the operation of successive approximation A/D convertor with neat diagram.
21. Describe the operation of Astable multivibrator with necessary theory and give its input and output waveform.
22. Explain the inverting and non-inverting configuration of operational amplifier.

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