ADITYA DEGREE COLLEGES

ANDHRA PRADESH

VI SEMESTER - PREFINAL EXAMINATIONS

III B.Sc - PHYSICS-VII(A)

(Analog and Digital Electronics)

Date:

Max. Marks : 75
Time : 3 Hours

Answer any FIVE questions **5x5= 25M**

1. Draw the symbols of LED, LDR, photo diode, and write their typical applications.
2. Define CMRR and slew rate.
3. Explain the concept of virtual ground.
4. Draw and explain how the op-Amp acts as voltage follower.
5. What is Flip-Flop ? Explain working of clocked RS Flip-Flop.
6. Calculate the output voltage of an OP-AMP amplifier for the following set of voltages and resistors. $V_1 = 1v, V_2 = 2v, V_3 = 3v$; $R_1 = 500k\Omega$, $R_2 = 1M\Omega$, $R_3 = 1M\Omega$ and $R_f = 1M\Omega$
7. What is multiplexer and explain 2:1 and 4:1 multiplexer.
8. What is encoder explain priority encoder.

Section – B

Answer ALL questions. **5x10=50M**

9. (a) Explain the construction and working of FET and draw its drain characteristics.

(or)

(b) Explain the operation of LDR and draw its characteristics.

10. (a) Explain the block diagram of Op-Amp

(or)

(b) Differentiate Ideal and practical characteristics of Op-Amp.

11. (a) Explain the following applications of Op-Amp.
    i. Inverting amplifier.
    ii. Non inverting amplifier.

(or)

(b) Explain the functioning of OP-AMP as integrator and Differentiator.

12. (a) State and explain internal architecture of IC 555 and explain its applications as astable multivibrator.

(or)

(b) Explain about TTL NAND and NOR gates.

13. (a) Explain the working of Master-Slave JK Flip-Flop.

(or)

(b) Explain the designing procedure of code converter for BCD to Seven segment display.