M1PHY06-CP02: Electronics Laboratory

External: 80 Marks Internal: 20 marks

External Assessment: Section-A: 30 marks, Section-B: 30 marks, Viva-Voce: 20 marks

NOTE:

1 Students are required to complete at all experiments allotted to them from Section-A and section-B.

2. Students are expected carry out the practical after understanding theoretical principle behind each experiment, design of experiments, working principle of the equipments/instruments, sources of errors in experiments etc.

3. Experimental errors must be estimated in all experiments.

LIST OF EXPERIMENTS

SECTION-A: Analog Electronics

1. Measurement of operational amplifier parameters.
2. Study of Clipping and clamping circuits.
3. Study of active filter circuits
4. Study of active integrator and differentiator circuits
5. Study of Wien Bridge Oscillator
6. Study of wave form generators: (a) Square wave generator (astable multivibrator), (b) Pulse generator (monostable multivibrator) and triangular wave generator.
7. Study of Schmitt Trigger and comparators
8. Study of UJT parameters and Relaxation Oscillator
9. Design of a Regulated power supply: (a) Study of series voltage regulated power supply and (b) study of IC regulated power supply

SECTION-B: Digital Electronics

1. Study of Combinational circuits:
   (i) Two bit and four bit adder
   (ii) Subtractor
   (iii) Decoder and 7- segment display
   (iv) Multiplexer and
   (v) Demultiplexer
2. Study of Sequential circuits:
   (i) Flips Flops : RS, JK, JKMS, D &T flip-slops
3. Study of Shift Registers
4. Study of Counters :
   (i) 4-bit Ripple counter
   (ii) 4-bit Synchronous Counter
   (iii) BCD Counter

Note: Any other experiments suggested by teacher

Reference Books:

1. “Integrated Electronics”, by J. Millman and C.C. Halkias, TMH, New Delhi
2. "OP-AMP and Linear Integrated Circuits" by Ramakanth, A. Gayakwad, PHI, New Delhi
3. "Electronic Devices and Circuit Theory" by Robert Boylestead and Louis Nashelsky, PHI, New Delhi - 110001, 1991.
4. “Digital Logic and Computer design” by Electronics by Morris Mano
5. "Digital Principle and Applications" by A.P. Malvino and Donald P. Leach, TMH, New Delhi.
6. Lab manuals