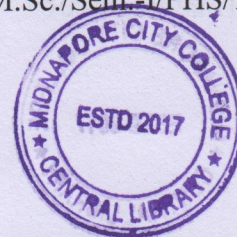**PG (NEW) CBCS**
M.Sc. Semester-I Examination, 2018
PHYSICS
PAPER: PHS-195
(PRACTICAL)

Full Marks: 50   **Time: 3 Hours**

PHS 195: ELECTRONICS PRACTICAL –I

The questions are of Equal Value

[Experiment: 35, LNB: 5, Viva Voce: 10]

Theory/working formula ……………………………………………..5

Circuit diagram and design of the circuit ……………………….5

Implementation …………………………………………………….4

Data recording ……………………………………………………10

Drawing the graphs and calculations ……………………………7

Accuracy …………………………………………………………….4

1. Design a LC filter circuit having specified cut-off frequency and study the frequency response characteristics. Draw the frequency response curve and find the cut-off frequency and compare with theoretical value.
2. Implement a circuit to study the drain and transfer characteristics of a FET and find out the drain resistance, mutual conductance and amplification factor of the FET.
3. Design and implement a 2 bit Comparator circuit and verify its truth table.
4. Design and implement a JK/MS flip-flop using NAND gates only and verify the truth table.
5. Implement on inverting OPAMP circuit for a particular gain (to be specified by the examiners) and study its linearity and frequency response characteristics. Find out its bandwidth.
6. Implement on non-inverting OPAMP circuit for a particular gain (to be specified by the examiners) and study its linearity and frequency response characteristics. Find out its bandwidth.
7. Study a step up and step down transformer and measure following parameters of the circuit
   a) Primary inductance
   b) Secondary inductance
   c) Mutual inductance
   d) Turn ratio
   e) Coupling constant