M.SC-CBCS/IS/PHS/105/17 (Pr.)

2017

PHYSICS

(Electronics Practical)

(Practical)

[M.SC]

(CBCS)

PAPER-105

Full Marks: 50

Time-3.hours

The questions are of equal value

[Exp. :-35, LNB. :-5, V.V. :-10,]

End semester examination

Theory /working formula ----------5

Circuit diagram and design of circuit----------5

Implementation----------4

Data recording----------10

Drawing the graphs and calculations----------7

Accuracy ----------4

Each question is to be performed one experimental within the scheduled time.

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 construct a regulated power supply using OP-AMP as comparator and power –transistor as pass element for specified output voltage. Study its load regulation characteristic?
4. Design and implement a JK/MS flip-flop using NAND gates only and verify its truth table?
5. Implement on inverting OP-AMP circuit for a particular gain (to be specified by the examiners) and study its linearity and frequency response characteristics. Find out its band width?
6. Implement a Non-Inverting OP-AMP circuit for a particular gain (to be specified by the examiners) and study its linearity and frequency response characteristics. Find out its band width?
7. Study a step down transformer and measure of it's the following parameters
    1) Primary inductance
    2) Secondary inductance
    3) Mutual inductance
    4) Turn ratio
    5) Coupling constant