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**PG CBCS**  
**M.SC. Semester-I Examination, 2021**  
**DEPARTMENT OF PHYSICS**  
**PAPER: PHS 195 (PRACTICAL)**  
**(ELECTRONICS PRACTICAL)**

**Full Marks: 50**

**Time: 3 Hours**

**Answer any TWO questions of the following:**

**2X10=20**

1. Design a LC filter circuit having specified cut-off frequency (1 Mhz) and study the frequency response characteristics. Draw the frequency response curve and find the cut-off frequency and compare with theoretical value.
2. Draw the drain and transfer characteristics of a FET and hence show how to find out the drain resistance, mutual conductance and amplification factor of FET.
3. Write truth table of a JK/MS flip-flop. Draw ckt. diagram of a JK/MS flip-flop using NAND gates only.
4. Draw the ckt. diagram of an inverting OP-AMP circuit for a particular gain (10) and show its its linearity and frequency response characteristics in graphical representation . Find out its bandwidth from the figure.
5. Draw the ckt. diagram of an non-inverting OP-AMP circuit for a particular gain (10) and show its its linearity and frequency response characteristics in graphical representation . Find out its bandwidth from the figure.
6. Draw 2-bit binary comparator with basic components, and explain its operation in details.

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