

GOA UNIVERSITY
M.Phil / Ph.D. Entrance Test

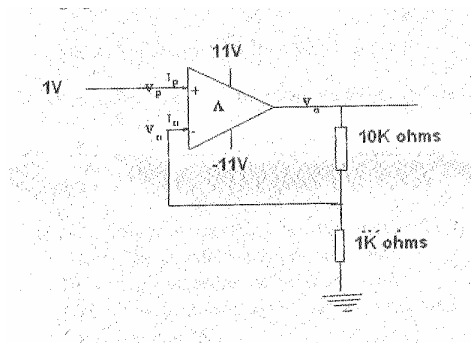
Sample Questions for Paper II

DEPT. OF ELECTRONICS

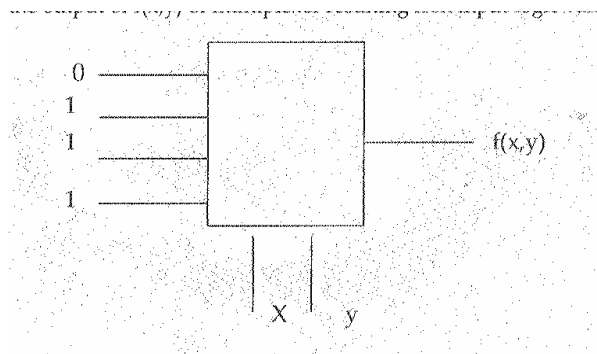
Section I: Marking Scheme: 1 mark for each question.

1. In standard TTL, the totempole stage refers to
 - a. Multi emitter input stage
 - b. Phase splitter
 - c. Inverter
 - d. Output buffer
2. Shift register can be used for
 - a. Code conversion
 - b. Parallel to serial conversion
 - c. Generating memory chip select
 - d. Analog to digital conversion
3. Negative feedback
 - a. Decreases input resistance
 - b. Increases bandwidth
 - c. Increases distortion
 - d. Increases output resistance
4. Shot noise is generally observed in
 - a. Resistor
 - b. Thermistor
 - c. Capacitor
 - d. Transistor
5. The ripple factor of bridge rectifier is
 - a. 0.408
 - b. 0.812
 - c. 1.21
 - d. 1.11
6. D FF is a ----- circuit.
 - a. Combinational
 - b. Astable
 - c. Bistable
 - d. Monostable

7. Voltage gain of the following circuit is



- 1
 - 10
 - 10
 - 11
8. What is the output of $f(x,y)$ of multiplexer resulting from input logic values?



- EX-OR
- NOR
- AND
- NAND

Section II: Marking Scheme: 5 marks for each question.

- State and prove the maximum power transfer theorem.
- Design an op-amp based active filter to remove the 60 Hz frequency.
- Explain with the help of a neat diagram the UJT characteristic.
- State Moore's Law. Differentiate between thick and thin film fabrication technique.