Registration No. :												
Total number of printed pages – 3										В.	Tech	
											DE	2101

First Semester Examination - 2013

BASIC ELECTRONICS

QUESTION CODE: C-613

Full Marks - 70

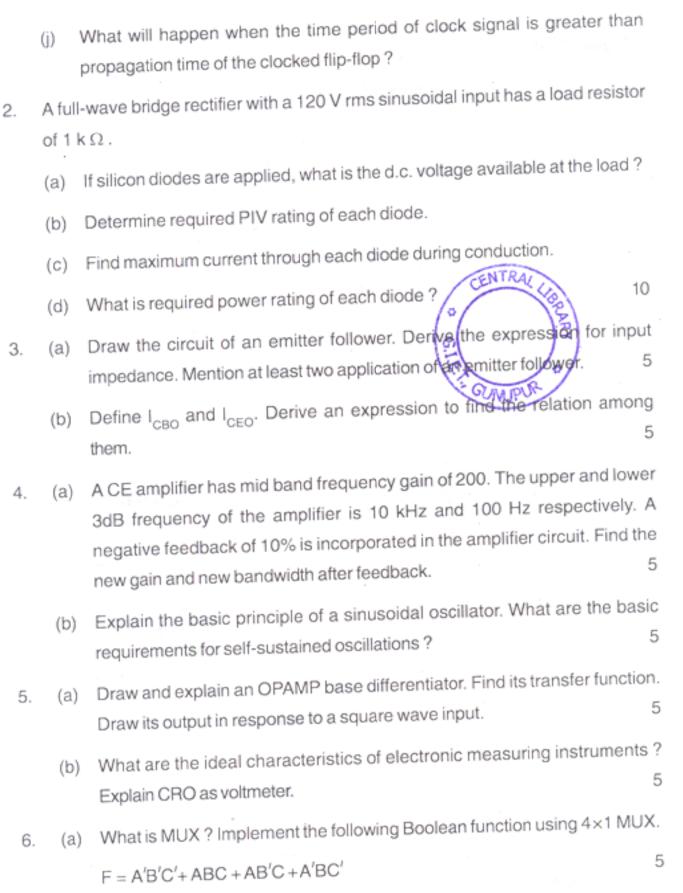
Time: 3 Hours

Answer Question No. 1 which is compulsory and any five from the rest.

The figures in the right-hand margin indicate marks.

Answer the following questions :

- 2×10
- (a) What is the significance of virtual ground of an OPAMP?
- (b) An ideal p-n junction act as a bistable switch. Justify.
- (c) How the emitter bi-pass capacitor in a OE amplifier prevents signal degeneration?
- (d) Why a fixed bias is called so? Justify.
- (e) Give the load line of a BJT amplifier if V_{CC} = +18V and R_{C} = 1.5 K Ω .
- (f) Realize an EX-OR gate using NOR gate.
- (g) What is de-Morgan's law?
- (h) What is the radix of a number in number system? Convert (11010010)₂ into hexadecimal system.
- (i) What is a time base voltage? Why the time base voltage is generally given to X plate of a CRO?



- (b) Simplify the following function using Boolean algebra identity.
 F (A, B, C, D) = ∑ m (4, 5, 6, 7, 12, 13, 14).
 And then, write the simplified functions in POS and SOP form
- (a) Explain half-adder and full adder logic circuit. Then, implement a full-adder with half-adder and OR gates.
 - b) What is a binary counter? Design binary counter circuit using flip-flops which will count three bit binary sequence.
 5
- 8. Write short notes on any two of the following:

5×2

5

- (a) RS Flip-flops
- (b) Inverters using
- (c) DC biasing of transistors
- (d) Static and dynamic RAMs