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Paper Code: EC-408	Roll No.									

B.Tech.
(SEM IV) EVEN SEMESTER EXAMINATION, 2015-16
ANALOG & DIGITAL ELECTRONICS

[Time: 3 hrs.] **[Max. Marks: 100]**

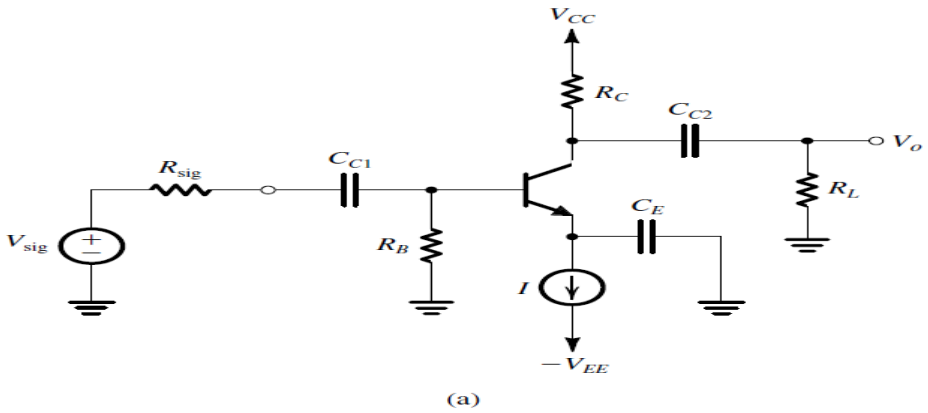
Note- Attempt All Questions. All Questions carry equal marks.

Q1. Attempt any FOUR parts of the following: **[5x4=20]**

(a) With the useful region in the curve draw the V-I characteristics of the tunnel diode.
(b) How transistor works as a switch explain with neat diagram.
(c) Describe the characteristics and application of Photo diode.
(d) Write a short note on Varactor diode.
(e) Explain the working principle of Schottky diode.
(f) Draw the gate level diagram of T flip flop.

Q2. Attempt any TWO parts of the following: **[10x2=20]**

(a) Draw the equivalent circuit model offour basic Amplifiers with their equations.
(b) Explain the high frequency response of common source amplifier.
(c) It is required to find the mid band gain and the upper 3-db frequency of the common emitter amplifier of the given figure (a) for the following case: Vcc = V_{EE} = 10 V, I = 1 mA, R_B = 100 KΩ, R_C = 8 KΩ, R_{Sig} = 5 KΩ, R_L = 5 KΩ, β_0 = 100, V_A = 100 V, Cμ = 1pF, f_T = 800MHz and r_X= 50Ω.



(a)

Q 3. Attempt any TWO parts of the following: **[10x2=20]**

(a) Explain the Series-Series feedback topology with relevant equations.
(b) Write a short note on limiter circuit for amplitude control with their characteristics.
(c) Write a detailed note on LC tuned oscillators. A 2MHz quartz crystal is specified to have L = 0.52 H, C_S= 0.012 pF, C_P = 4pF and r = 120 Ω. Find f_S, f_P, and Q.

Q4. Attempt any TWO parts of the following: **[10x2=20]**

(a) Draw all the logic gates with the help of 2:1 mux.
(b) Write a short note on master slave JK flip flop.
(c) Explain the mod-16 counter with neat diagram. Also describe the working of shift register.

Q5. Attempt any TWO parts of the following: **[10x2=20]**

(a) Write a short note on a stable and mono stable multi-vibrator.
(b) Explain the organization of RAM with the help of neat diagram. Also describe the switching regulators.
(c) Explain A/D converter using voltage to frequency converter. Describe any one method of A/D converter.