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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST-3 EXAMINATION- December -2017

B. Tech (3rd Semester) ECE

COURSE CODE: 10B11EC312

MAX. MARKS: 35

COURSE NAME: Analog Electronics

COURSE CREDITS: 04

MAX. TIME: 2Hrs.

Q1- (a) What are different types of negative feedback connections. Explain how the input and output impedances of an amplifier are affected by different types of negative feedback connections? [4]

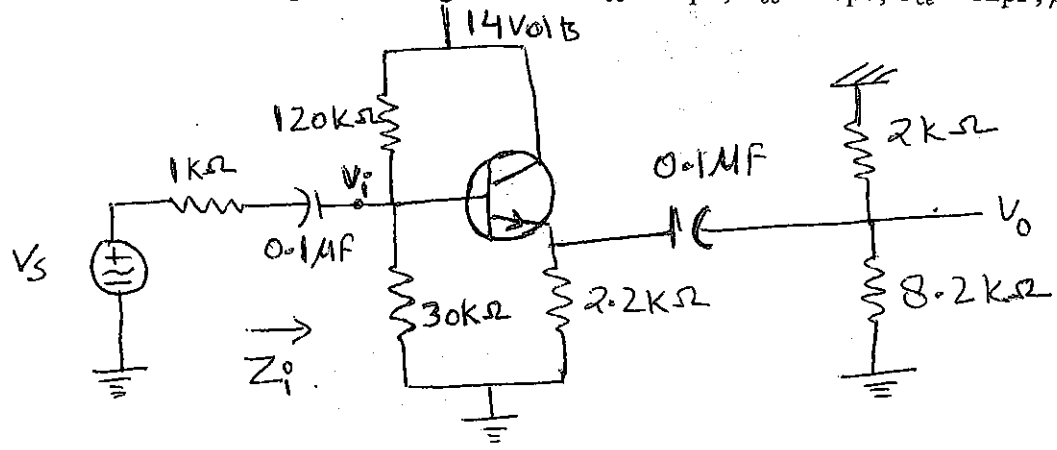
(b) The distortion in an amplifier is found to be 3%, when the feedback ratio of a negative feedback amplifier is 0.04. When the feedback is removed, the distortion becomes 15%. Find the open loop gain and closed loop gain. [3]

Q2. (a) What are the essential differences between an amplifier and an oscillator? [3]

(b) Draw the circuit diagram of Wien bridge oscillator and explain its working. [3]

Q3. (a) How does the emitter bypass capacitor CE determine the lower cut-off frequency? Derive the required result. [4]

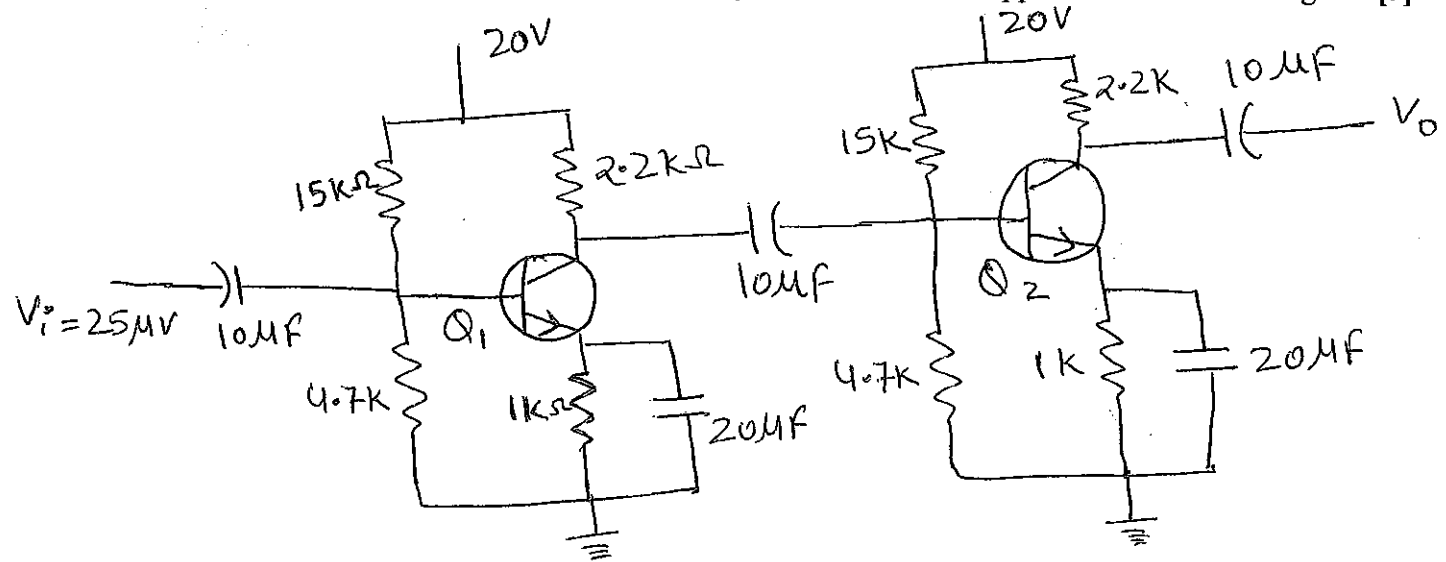
(b) For the given circuit draw the r_e model and find $r_{e1}, A_{v, mid}, Z_i, A_{v_s, mid}, f_L, f_H$ and sketch the frequency response. It is given that: $C_{bc} = 20pF, C_{be} = 30pF, C_{ce} = 12pF, \beta = 100, r_o = \infty$. [11]



Q4. For the given circuit Calculate:

(a) Calculate no load voltage gain and output voltage of RC coupled transistor amplifier. [4]

(b) Calculate the overall gain and output voltage, if 4.7KΩ load is applied to the second stage. [3]



$\beta_1 = \beta_2 = 200, r_o = \infty$