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Reg.No. | | | | | | | | | | |

B.E / B.Tech (Full Time) DEGREE ARREAR EXAMINATIONS, NOV / DEC 2013

ELECTRONICS AND COMMUNICATION ENGINEERING BRANCH

FOURTH Semester

EC 282 / EC 9252 ELECTRONIC CIRCUITS-II

(Regulation 2004 / 2008)

Time : 3 Hours | Answer ALL Questions | Max. Marks 100

PART-A (10 x 2 = 20 Marks)

1. Draw the equivalent circuit of a voltage amplifier.
2. The distortion in an amplifier is found to be 5% when the feedback ratio is 0.05. When the feedback is removed the distortion becomes 20%. Find the closed loop gain.
3. Draw the circuit diagram of a Franklin oscillator.
4. A quartz crystal has C_m = 1 pF, L_S = 3H; C_S = 0.05 pF and R_S = 1 kΩ. Calculate the series and parallel resonant frequencies.
5. What is the disadvantage of single tuned amplifiers. How it is overcome in double tuned amplifiers.
6. The resonant frequency and Q factor of a single tuned amplifier are 450 KHz and 15 respectively. If 4 single tuned amplifiers are connected in series, what is the effective bandwidth of the cascaded amplifier.
7. Draw the circuit diagram of an emitter coupled bistable multivibrator.
8. An inverter circuit using 2N 3904 transistor with t_{on} = 70 ns has R_s = 600 Ω and R_B = 5.6 kΩ. Design a suitable speed up capacitor to give maximum improvement in transistor turn-on time.
9. Mention the special features of IGBT.
10. Obtain the rectification efficiency of a full wave rectifier.

PART-B (5 x 16 = 80 Marks)

11.(i) With one example circuit for each compare current series and voltage shunt feedback amplifiers. **(8)**

(ii) With the topology, derive the input impedance with feedback R_{if} for series and shunt comparison. **(4)**

(iii) "Negative feedback in amplifiers stabilizes the forward transfer gain" – Justify the statement. **(4)**

(ii)For the circuit shown in Fig.14a(ii) Determine the value of Q at resonance and Bw of the circuit

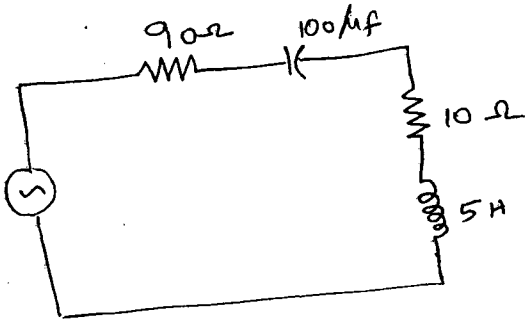

fig.14 a(ii)

OR

b) Find the complete transient response of the given circuit in fig.14b

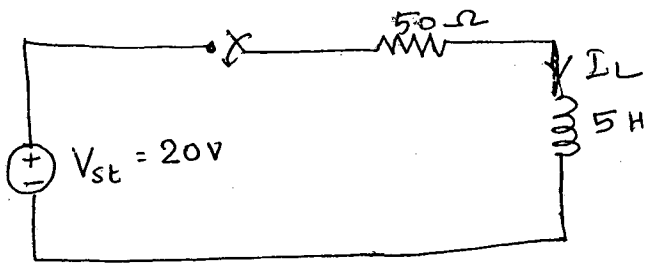

fig. 14b

15. a) For the ac-exited magnetic circuit of fig.15a, calculate the excitation current and induced emf of the coil to produce a core Flux of 0.4 sin 314tmWb.Also calculate the coil inductance.What would be its value if $\mu_r=\infty$?

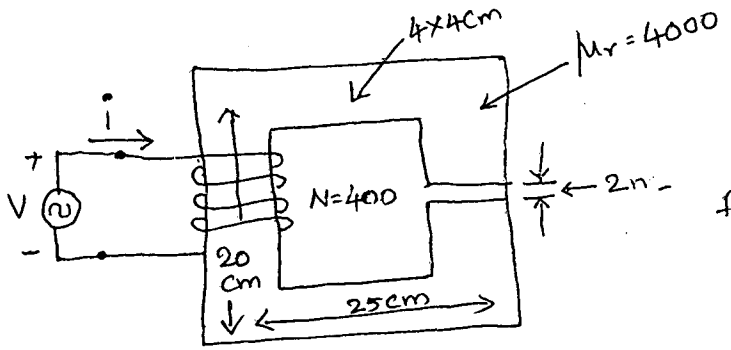

fig.15a

OR

b) For the magnetic circuit of fig.15b, find $\bar{I}_2$, $\bar{V}_2$ also $\bar{V}_2/\bar{V}_1$

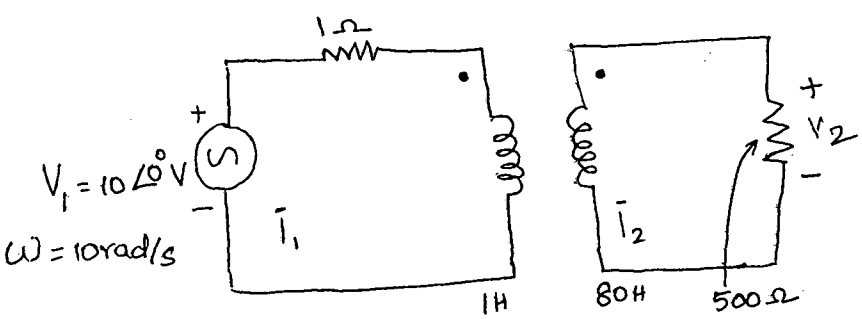

fig.15b

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