Hall Ticket Number:

Code No. : 22215

VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD

B.E. (E.E.E.) II Year II-Semester Main & Backlog Examinations, May-2017

Electronic Engineering-II

Time: 3 hours Max. Marks: 70

*Note: Answer **ALL questions in Part-A and any FIVE from Part-B***

Part-A (10 × 2 = 20 Marks)

1. Mention the advantages and disadvantages of negative feedback.
2. Justify how negative feedback provides gain stability.
3. Explain why Crystal oscillators are more stable than other Oscillators.
4. Give the advantages of Wein bridge oscillator over RC Phase shift oscillator.
5. What are the ideal characteristics of operational amplifiers?
6. A differential amplifier has a differential gain of 100 and a common mode gain of 0.01. What is its CMRR in dB?
7. Draw and briefly explain complementary symmetry power amplifier.
8. Briefly explain why power amplifiers are called large signal amplifiers.
9. Determine the peak output voltage for a positive series clipper circuit for which, the input signal is sinusoidal of peak value 15V. The barrier voltage for silicon diode is 0.7V. Draw the transfer characteristics of this circuit.
10. Define rise time and Delay time of a low pass filter for a step input.

Part-B (5 × 10 = 50 Marks)

11. a) Derive the expressions for input impedance and output impedance of a voltage series feedback Amplifier. [7]

    b) An amplifier with open loop gain of 2000±150 is available. It is necessary to have an amplifier whose voltage gain varies by not more than ±0.2%. Calculate the feedback factor β, and the gain of the amplifier with feedback. [3]

12. a) Explain the operation of Colpitt's oscillator and derive the expression for frequency of oscillations. [6]

    b) In a Hartley Oscillator L_2=0.04mH, C=0.004 μF. If the frequency of oscillation is 150 KHz, find L_1. Neglect mutual Inductance. [4]

13. a) Explain the operation of various drift compensation techniques. [6]

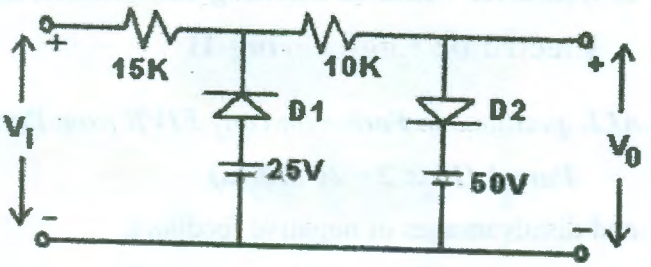
    b) Draw the diagram of a differential amplifier and explain its salient features. [4]

14. a) Draw a circuit diagram of a push pull amplifier circuit and explain how proper biasing is achieved for a circuit. Also explain how AC power that is free from even harmonics is developed across the load. [6]

    b) For harmonic distortions of $D_2 = 0.1$; $D_3 = 0.02$ and $D_4 = 0.01$ with fundamental component of output signal I_1=4 A and R_L=8Ω. Calculate the total harmonic distortion, fundamental power component and total power. [4]

Contd...2

15. a) For the circuit shown in Figure, V_i is a sinusoidal voltage of peak 75 volts. Assuming ideal diodes, sketch one cycle of output voltage. [6]



b) What are the applications of high pass circuits and low pass circuits? [4]

16. a) Write a short note on stability of oscillators. [5]

b) An amplifier has a voltage gain of 4000. Its input impedance is 2 kΩ and output impedance is 60 kΩ. Calculate the voltage gain, input and output impedance of the circuit when 5% of feedback is fed in the form of shunt negative feedback. [5]

17. Answer any ***two*** of the following:

a) Write a short note on problems of D.C.Amplifiers. [5]

b) Write a short note on Harmonic distortion. [5]

c) Draw the basic circuit diagram of negative peak clamper circuit and explain its operation. [5]

******