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VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD

B.E. (E.E.E.) II Year II-Semester Advanced Supplementary Examinations, June/July-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. Explain sampling and mixing networks.
2. What is sensitivity with respect to feedback amplifiers?
3. Mention the drawbacks of Colpitt's oscillator.
4. Draw the equivalent circuit of Crystal oscillator.
5. Define A_C and A_D of Difference amplifier.
6. Mention the problems of D.C. amplifier.
7. Calculate the transformer turns ratio required to match 8 ohms speaker load to an amplifier such that the effective load resistance is 3.2KΩ.
8. Mention the differences between voltage and Power Amplifier.
9. Prove that low pass circuit acts as an Integrator.
10. Draw the two level clipper circuit and its output wave form with sinusoidal input signal.

Part-B (5 × 10 = 50 Marks)

11. a) Derive the expressions for Z_{if}, Z_{of} of a voltage shunt feedback Amplifier. [5]
    b) An amplifier with negative feedback has a voltage gain of 100. It is found that without feedback, an input signal of 50mv is required to produce a given output, whereas with feedback the input signal must be 0.5V for same output. Determine A and β. [5]
12. a) Explain why RC oscillators are preferred for low frequencies? Draw a neat Circuit diagram of Phase Shift Oscillator using BJT and derive the expression for minimum h_{fe} required to sustain oscillations. [7]
    b) A crystal has following parameters L=0.5H, C=0.06pF,C_m=1pF and Rs=5K find the series and parallel resonant frequencies and quality factor of the crystal. [3]
13. a) Explain the operation of circuits which improve CMRR in differential amplifiers. [7]
    b) A difference amplifier has a CMRR of 60 dB and A_D=1000. Fine A_C in dB. [3]
14. a) In series fed Class - A power amplifier, explain the importance of the position of operating point on output signal swing. Show that the conversion efficiency is 25%. [7]
    b) In a class A amplifier V_{CE} (max) = 25 V, V_{CE} (min) = 5V. Find the overall efficiency for Series fed load and Transformer coupled load. [3]
15. a) Discuss the response of the differentiating circuit on a square wave and ramp input. [6]
    b) How can an ideal diode with a biasing be used to clamp a wave form at a specified level. [4]
16. a) Explain the effect of negative feedback on amplifier bandwidth. [6]
    b) Define Barkhausen criterion and explain how it is satisfied in LC-Oscillators. [4]
17. Write short notes on any ***two*** of the following:
    a) Drift compensation techniques. [5]
    b) Cross over distortion. [5]
    c) Clamping circuit theorem. [5]

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