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**Question Paper Code : 33376**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Fourth Semester

Electrical and Electronics Engineering

EC 1261 – ELECTRONIC CIRCUITS

(Common to Third Semester ; Electronics and Instrumentation Engineering and  
Instrumentation and Control Engineering)

(Regulation 2004/2007)

(Common to B.E. (Part - Time) Third Semester, Electrical and Electronics  
Engineering, Regulation 2005)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Differentiate between Cascade and Darlington circuit connections.
2. State the advantages of Push-pull Class C amplifier.
3. State the characteristics of differential amplifier.
4. Differentiate between single tuned and double tuned amplifier circuits.
5. What is Barkhausen criterion? State the basic conditions for oscillations in a feedback amplifier?
6. Mention the advantages of Wein bridge oscillator over phase shift oscillator.
7. Give the expression for Hysteresis voltage and draw its curve.
8. What is a Monostable Multivibrator? State any two of its applications
9. Define Transformer Utilization Factor (UTF).
10. Define Regulation and give its expression.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Draw the circuit diagram of a small-signal single-stage low frequency transistor amplifier in the CE mode. Using the h parameters, obtain expressions for current gain, input resistance, voltage gain and output admittance. (10)
- (ii) Discuss the high frequency effects in a transistor. (6)

Or

- (b) (i) Explain the self biasing configuration of a n-p-n transistor in the CE mode. Obtain the expressions for the stability factor. State its advantages. (10)
- (ii) With a neat circuit diagram, explain the operation of class B push pull amplifier. Derive its efficiency. (6)
12. (a) (i) Explain the operation of a differential amplifier circuit. Derive its output expression for both common mode and differential mode. (10)
- (ii) Define Common Mode Rejection Ratio and derive the expression for CMRR. (6)

Or

- (b) (i) Draw a neat sketch of a single tuned amplifier and explain its operation with the help of its frequency response, DC/AC equivalent circuits and the load lines. (10)
- (ii) State the advantages of the Double Tuned Amplifier and its characteristics. (6)
13. (a) (i) Derive the voltage gain expression for an emitter follower circuit with feedback. (10)
- (ii) State the effects of negative feedback in an amplifier. Explain how it reduces the nonlinear distortion of an amplifier. (6)

Or

- (b) (i) Explain the operation of phase Shift Oscillator with the help of a circuit diagram. Derive the expression for its frequency of oscillation and the condition for sustained oscillation. (10)
- (ii) What is Piezo electric effect? Explain the operation of crystal oscillator. (6)
14. (a) (i) Explain different types of diode clipper circuits. Sketch their output waveforms with respect to their inputs. State their applications. (10)
- (ii) Explain the operation of Bistable multivibrator and derive its time period.

Or

- (b) (i) Explain the operation of UJT based saw tooth oscillator. (10)
- (ii) Explain the operation of Schmitt trigger circuit along with its Hysteresis curve. (6)

15. (a) (i) Explain the operation of Full wave rectifier and derive its ripple factor. (10)
- (ii) Explain the term Peak Inverse Voltage of a rectifier. Compare it for HWR and FWR. (6)

Or

- (b) (i) Draw a neat diagram of SMPS and explain its various stages. (10)
- (ii) State the advantages of series voltage regulator. (6)
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