

G 1611

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Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2016

Fourth Semester

Branch : Electronics and Communication/Applied Electronics and Instrumentation/Electronics and Instrumentation Engineering

ELECTRONIC CIRCUITS—II (L A S)

(Old Scheme—Prior to 2010 Admissions)

[Supplementary/Mercy Chance]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 4 marks.



1. Draw the r parameter model of a CE configuration and identify the parameters.
2. Sketch the frequency response characteristics of an IF tuned amplifier and explain how Q is calculated.
3. Identify the type of negative feedback in an emitter follower circuit and state how the properties of the amplifier are improved.
4. What is a cascode amplifier ? What are its properties ?
5. State and explain Barkhausen criteria in oscillators.
6. Explain how oscillations are started and set up in a sine wave oscillator, without the application of any initial signal.
7. Explain the need of commutating capacitor in a Schmitt trigger circuit.
8. Compare and contrast base triggering and collector triggering in a bistable multivibrator circuit.
9. What is cross-over distortion ? How it can be eliminated ?
10. What are the applications of voltage and current sweeps ?

(10 × 4 = 40 marks)

Part B

Answer all questions.

Each full question carries 12 marks.

11. Using hybrid π high frequency equivalent circuit, derive expressions for the current gain and bandwidth of a CE amplifier.

Or

12. Draw a two-stage RC coupled CE amplifier. Derive expressions for its (i) R_i ; (ii) A_v ; and (iii) A_{v_f} .

Turn over

13. Draw a circuit of voltage shunt negative feedback amplifier and derive expressions for its (i) feedback factor ; (ii) gain with feedback ; (iii) input and output resistances with feedback.

Or

14. What are the properties of Darlington emitter follower ? Derive equations and discuss its applications.
15. Draw and explain the circuit of a Hartley oscillator. Design the circuit to generate 400 kHz sine waves.

Or

16. Draw and explain the FET circuit of RC phase shift oscillator. With the help of equivalent circuit, derive expressions for (i) frequency of oscillation ; (ii) gain for sustained oscillations.
17. With a transistorised self-biased circuit and necessary waveforms, describe how a fixed pulse delay can be generated ? Use collector triggering.

Or

18. Draw the Schmitt trigger using BJT and with the help of waveforms, explain its working. Design the circuit for $LTP = +2V$ and $UTP = +4V$.
19. With the help of circuit diagram and waveforms, explain a transformer coupled class B push pull power amplifier. Derive expression for its efficiency.

Or

20. With neat circuit and waveforms, explain how linear sweeps are generated using bootstrap sweep circuit. Explain clearly how the linearity of the output voltage is ensured.

(5 × 12 = 60 marks)

