Register Number.....

B.E. DEGREE EXAMINATIONS: APRIL /MAY 2009

Fourth Semester

ELECTRONICS AND COMMUNICATION ENGINEERING

U07EC401 Electronic Circuits - II

Time: Three Hours **Maximum Marks: 100**

Answer ALL the Questions:-

PART A (20 × 1 = 20 Marks)

1. In a feedback amplifier, loop gain is

   A. Aβ B. − Aβ C. 1/ Aβ D. −1/ Aβ

2. Emitter follower is a negative feedback amplifier using

   A. Voltage series feedback B. Current series feedback
   C. Current shunt feedback D. Voltage shunt feedback

3. Negative feedback amplifier results in

   A. More gain and more bandwidth B. More gain and less bandwidth
   C. Less gain and more bandwidth D. less gain and less bandwidth

4. In a feedback amplifier desensitivity D equals to

   A. Aβ B. 1− Aβ C. 1+ Aβ D. 1/1+ Aβ

5. If Barkhausen criterion is not fulfilled by an oscillatory circuit, it will

   A. Stop oscillating B. Produce damped waves continuously
   C. Become an amplifier C. Produce high frequency whistles

6. In a transistor Hartly oscillator

   A. a inductive feedback is used B. untapped coil is used
   C. entire coil is the output circuit D. no capacitor is used

7. A colpitts oscillator uses

   A. tapped coil B. inductive feedback
   C. tapped capacitance D. no tuned LC circuit

8. Wein bridge oscillator is most often used wherever

   A. wide range of high purity sine waves are to be generated
   B. high feedback ratio is needed
   C. square output waves are required
   D. extremely high resonant frequencies are required

9. Coil loses can be represented in the form of

   A. Leakage resistance in series with the inductor
   B. Leakage resistance in parallel with the inductor
   C. Leakage resistance in series with the Capacitor
   D. Leakage resistance in parallel with the inductor

10. The relationship between Bandwidth, Quality factor and resonant frequency is

A. $BW = Q/f_r$ B. $BW = f_r / Q$ C. $BW = Q+f_r$ D. $BW = Q- f_r$

11. Tuned circuits are bulky and costly because they use

A. Resistance and inductance
B. Resistance and capacitance
C. Inductance and capacitance
D. Inductance alone

12. The amplifier is said to be class C such that

A. Output signal is obtained less than a half cycle
B. Output signal is obtained more than a half cycle
C. Output signal is obtained at exactly half cycle
D. Output signal is obtained for full cycle

13. The frequency of oscillation of a astable multivibrator depends mainly on the

A. Value of the collector load resistance
B. RC values of the circuit
C. Value of transistor β
D. width of the input pulses

14. Monostable multivibrator may be used to generate

A. sweep voltage
B. pulses
C. Sinusoidal voltage
D. sweep current

15. Which of the following circuit is used for production of delays

A. astable multivibrator
B. bistable multivibrator
C. monostable multivibrator
C. Schmitt trigger

16. In a multivibrator, commutating capacitors

A. reduce the transition time
B. reduce the rise time
C. reduce the settling time
D. increase the settling time

17. A relaxation oscillator is one which

A. has two stable states
B. relaxes indefinitely
C. produces non sinusoidal output
D. is fit for digital operation

18. Apart from a dc power source, the essential requirements of a saw tooth generator are

A. resistor
B. capacitor
C. switching device
D. all the above

19. Bootstrap voltage sweep generator uses

A. negative feed back
B. positive feedback
C. both negative and positive feedback simultaneously
D. no feedback

20. Miller integrator voltage sweep generator uses

A. negative feed back
B. positive feedback
C. both negative and positive feedback simultaneously
D. no feedback

PART B (5 x 16 = 80 Marks)

21. (a). With neat diagram, explain the nature of feedback in emitter follower circuit. Also derive the expression for input and output impedance, voltage and current gain. (16)

(OR)

(b).(i) Explain the block diagram of four types of feedback topologies and compare them with respect to R_{if} and R_{of}. (8)

(ii) Explain Nyquist stability criterion to analyze the stability of feedback amplifier. (8)

22.(a). Explain the RC phase shift oscillator using cascade connection of high pass filter with neat diagram. Derive its frequency of oscillation. Give the amplifier gain and feedback network gain to sustain oscillator operation. (16)

(OR)

(b). Write short notes on

(i) Miller Crystal Oscillator (8)
(ii) Pierce Crystal Oscillator (8)

23.(a).(i) Explain single tuned voltage amplifier and discuss its frequency response. (10)

(ii) Explain Hazeltine neutralization method to maintain stability in tuned amplifiers. (6)

(OR)

(b). Define class C amplifiers. Sketch a tuned class C amplifier with an LC tank circuit as load. Derive its efficiency. Also explain the applications of class C amplifier. (16)

24.(a). Draw and explain the circuit of astable multivibrator. Also draw the wave forms at salient points. Derive expressions for frequency of oscillation. (16)

(OR)

(b). (i) With neat diagram, explain the operation of monostable multivibrator. (12)

(ii) Explain the effect of speed up capacitor in bistable multivirator. (4)

25.(a). Draw and explain the operation of base timing monostable blocking oscillator. Derive the expression for pulse width. (16)

(OR)

(b).(i) Explain the operation of miller saw tooth generator with necessary waveforms. (8)

(ii) Explain the operation of UJT saw tooth generator. (8)

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