B.E DEGREE EXAMINATIONS: APRIL/MAY 2014

(Regulation 2009)

Third Semester

ELECTRONICS AND INSTRUMENTATION ENGINEERING

EIE102:Electronic Circuits

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

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. _____is a multistage amplifier having two or more single stage common emitter connections.
   - a) Cascade amplifier
   - b) Class A amplifier
   - c) Push-pull amplifier
   - d) Class AB amplifier

2. The approximate current gain of CE transistor amplifier is _____
   - a) h_{ie}
   - b) $- h_{ie}$
   - c) $- h_{fe}$
   - d) h_{fe}

3. For a practical differential amplifier
   - a) A_d is large and A_c is small
   - b) A_d is small and A_c is large
   - c) Both A_d and A_c are large
   - d) Both A_d and A_c are small

4. The impedance of the tuned circuit is
   - a) $Z_r = R/LC$
   - b) $Z_r = C/LR$
   - c) $Z_r = L/CR$
   - d) $Z_r = CR/L$

5. The phase shift required by RC phase network in a transistor oscillator is
   - a) 90º
   - b) 180º
   - c) 360º
   - d) 0º

6. In wein bridge oscillator, if $R_f = 1.0$ MΩ, $C_f = 1.0$ nF the frequency of oscillation is
   - a) 159 KHz
   - b) 159 MHz
   - c) 159 Hz
   - d) 1.59 KHz

7. _____ is a relaxation oscillator, used to produce non- sinusoidal waveforms.
   - a) Clamper
   - b) Clipper
   - c) Schmitt trigger
   - d) Multivibrator

8. Which circuit is designed to reduce the positive or negative extremities of an input waveform?
   - a) Multivibrator
   - b) Clamper
   - c) Clipper
   - d) Schmitt trigger

9. The peak inverse voltage (PIV) value of Full wave rectifier is
   - a) V_m
   - b) $2V_m$
   - c) $V_m/2$
   - d) $4V_m$

10. The Transformer utilization factor (TUF) value of Half wave rectifier is
    - a) 0.287
    - b) 0.812
    - c) 0.574
    - d) 1.624

PART B (10 x 2 = 20 Marks)

11. What is biasing? Give its types

12. Define the darlington connection.

13. What is tuned amplifier?

14. List the various modes of the differential amplifier.

15. List out the characterization of negative feedbacks amplifiers.

16. State barhausen criterion for sinusoidal oscillators.

17. Compare the clipper and clamper circuits.

18. Define multivibrator.

19. Outline the need of filter circuit.

20. Mention the major components of switched mode power supply.

PART C (5 x 14 = 70 Marks)

21. a) Explain in detail about the push pull amplifiers with diagram. Derive its efficiency.

    (OR)

    b) Evaluate the cascade and darlington connections in detail.

22. a) Elaborate the different modes of operation of differential amplifiers. Also derive the DC and AC analysis.

    (OR)

    b) Elucidate the working of capacitance coupled single tuned amplifier with circuit.

23. a) Illustrate the construction and working of wien bridge oscillator.

    (OR)

    b) (i) With neat circuit diagram explain the working of colpitts oscillator and also   (10)

drive the condition for sustained oscillations.

(ii) In colpitts oscillator $C_1 = 0.001\mu F$, $C_2 = 0.01\ \mu F$, L=10 µH, find the frequency   (4)
of oscillation.

24. a) Describe the working of UJT saw tooth oscillators with necessary diagrams.

(OR)

b) With neat circuit explain the construction and principle of operation of diode
clipper and clamper.

25. a) Illustrate the construction and working of full wave rectifier with their input,
output waveforms and also mention it's ripple factor, efficiency, peak inverse
voltage and transformer utilization factor values.

(OR)

b) Analyze the working of series voltage regulator.

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