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JAYA GROUP OF INSTITUTIONS – THIRUNINRAVUR.

4TH SEMESTER – B.E / B.Tech.

INTERNAL ASSESSMENT – III (MODEL EXAMINATION - III)

Sub.Name: ELECTRONIC CIRCUITS II

Date:07/04/2015

Sub.Code: EC6401

Branch: ECE

Duration: 180 Minutes

Max.Marks:100

PART – A (10X2=20) Answer all questions

1. List the characteristics of an amplifier which are modified by negative feedback.
2. In a negative feedback amplifier, $A=100$, $\beta=0.04$, $V_s=50\text{mv}$, find (a) gain with feedback (b) output voltage (c) feedback factor (d)= feedback voltage.
3. Differentiate oscillator and amplifier.
4. State the Barkhausen criterion for sustained oscillation. What will happen to the oscillations if the magnitude of the loop gain is greater than unity?
5. Draw the electrical equivalent circuit of crystal.
6. What are tuned amplifiers? What are the various types of tuned amplifiers?
7. Why is neutralization required in tuned amplifiers?
8. Define the threshold points in a Schmitt trigger circuit.
9. List the applications of time base generators.
10. Calculate the frequency of the saw tooth waveform generated by a UJT oscillator, if $R_c=100\text{ k}\Omega$ and $c=0.01\text{ }\mu\text{f}$ and intrinsic stand off ratio is 0.5.

PART – B (5X16=80) Answer the questions as per the choice

11. a) (i) Draw the block diagram of voltage series feedback amplifier and derive the equation for input impedance, output impedance and the voltage gain. (10)
(ii) Explain how a negative feedback in an amplifier helps in reduction of distortion and noise. (6)
- OR
- b) (i) Draw the typical circuits for current series feedback configuration and derive the expression for voltage gain, current gain, Input impedance, output impedance. (10)
(ii) Discuss the effect of negative feedback on stabilization of gain. (6)

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12. a) (i) Explain the working of Hartley oscillator. Derive the expression for the frequency of oscillation and the condition for oscillation. (10)
- (ii) Describe the operation of Twin – T oscillators. (6)

OR

- b) (i) Draw the circuit diagram of RC phase shift oscillator and explain its operation by deriving the expression for frequency of oscillation. (10)
- (ii) Discuss about the frequency stability of an oscillator. (6)
13. a) (i) Draw the circuit diagram of a single tuned amplifier and explain the circuit operation. Also derive the expression for its frequency of oscillation. (12)
- (ii) Discuss the effect of cascading amplifiers. (4)

OR

- b) (i) Explain the working of stagger tuned amplifiers with appropriate derivations. (8)
- (ii) Explain the instability of tuned amplifiers and explain any one technique for stabilization. (8)
14. a) (i) With the circuit and waveforms explain the working of an astable multivibrator. (16)

OR

- b) (i) Explain the different methods of triggering in Bistable Multivibrator. (6)
- (ii) Sketch the circuit of bistable multivibrator and explain the circuit operation. (10)
15. a) (i) Distinguish between the operation of Miller and Bootstrap sawtooth voltage generators. (12)
- (ii) State the applications of pulse transformer. (4)

OR

- b) What is time base? With the help of a circuit diagram explain the working of UJT time base generator. Draw the waveforms at the emitter and both the bases. Derive its frequency of oscillation. (16)