Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 90184

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2019

Fourth Semester

EC8452 – ELECTRONIC CIRCUITS – II

(Common to Electronics and Communication Engineering/Electronics and Telecommunication Engineering)

(Regulations 2017)

Time : Three Hours | Maximum : 100 Marks

Answer ALL questions

PART – A **(10×2=20 Marks)**

1. Discuss the advantages of negative feedback in amplifiers.
2. A feedback amplifier has an open loop gain of 600 and feedback factor $\beta = 0.01$. Find the closed loop gain with feedback.
3. State the Barkhausen criterion for an oscillator.
4. If $L_1 = 1$ mH, $L_2 = 2$ mH and $C = 0.1$ nF, observe the frequency of oscillation for Hartley oscillator.
5. Mention two applications of tuned amplifiers.
6. Define loaded Q and unloaded Q of tuned circuit.
7. Describe a simple clamper circuit.
8. Outline the applications of astable multivibrator.
9. Which power amplifier gives minimum distortion ? Why ?
10. List the applications of MOSFET power amplifier.

PART – B **(5×13=65 Marks)**

11. a) Illustrate the current series feedback connection and derive the expressions for gain, R_{if} and R_{of}.

(OR)

b) i) Build the circuit diagram of voltage shunt feedback amplifier. **(5)**

ii) Derive the expressions for R_{if}, R_{of}., current and voltage gain. **(8)**

12. a) Explain the operation of Wien bridge oscillator with a neat circuit diagram and derive the expression of frequency of oscillation. **(13)**

(OR)

b) i) Explain the operation of Colpitts oscillator and derive the expression of its frequency of oscillation. **(10)**

ii) If C_1 and C_2 are 200 PF and 50 PF respectively. Calculate the value of inductance for producing oscillations at 1 MHz in the Colpitts oscillator circuit. **(3)**

13. a) Draw the single tuned amplifier and explain the frequency response. Derive the expression for its gain and cutoff frequency. **(13)**

(OR)

b) Conclude the following with neat circuit diagram :

i) Hazeltine neutralization. **(7)**

ii) Neutrodyne neutralization. **(6)**

14. a) i) Classify the various types of diode clippers. **(6)**

ii) For a transistor switching circuit predict the collector current response and other parameters for the input of pulse waveform. **(7)**

(OR)

b) With neat circuit diagram and suitable wave forms, explain the operation of a Collector coupled transistor Astable Multivibrator. **(13)**

15. a) i) Explain the operation of the transformer coupled class A audio power amplifier. **(7)**

ii) Explain the terms conversion efficiency and maximum value of efficiency used in audio power amplifiers. **(6)**

(OR)

b) Describe the operation of class C amplifier and derive its efficiency. **(13)**

PART – C **(1×15=15 Marks)**

16. a) Identify the working principle of RC phase shift oscillator circuit diagram, also derive the expression for frequency of oscillation and condition for sustained oscillation. **(15)**

(OR)

b) Examine the working of Miller and Pierce crystal oscillators with neat circuit diagrams. Compare them and comment on their features. **(15)**

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