Code: 13A04407

R13

B.Tech II Year II Semester (R13) Supplementary Examinations May/June 2017
ANALOG ELECTRONIC CIRCUITS
(Electrical and Electronics Engineering)

Time: 3 hours   Max. Marks: 70

PART – A
(Compulsory Question)
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1   Answer the following: (10 X 02 = 20 Marks)
(a)   What are the coupling schemes used in multistage amplifiers?
(b)   Two identical amplifiers having 10dB gain each are cascaded. Calculate the output, if the input is 1mV(pp).
(c)   What are the advantages of negative feedback?
(d)   Define the feedback factor.
(e)   Define Barkhausan criterion.
(f)   What is piezoelectric effect?
(g)   What is crossover distortion?
(h)   What is the use of heat sink?
(i)   Mention few applications of astable mutivibrator.
(j)   What are different types of clippers?

PART – B
(Answer all five units, 5 X 10 = 50 Marks)

[UNIT – I]

2   (a)   Explain low frequency and high frequency response of RC coupled amplifier.
(b)   Calculate overall lower 3dB and upper 3dB frequency for a 3-stage amplifier having an individual lower cut off frequency of 40 Hz and upper frequency of 2 MHz.
OR
3   (a)   When 2-stages of identical amplifiers are cascaded, obtain the expressions for overall voltage gain, current gain and power gain.
(b)   Explain the advantages of cascading of amplifier configurations.

[UNIT – II]

4   (a)   List the general characteristics of negative feedback amplifier and derive the expression for gain with negative feedback.
(b)   The voltage gain of an amplifier without feedback is 60dB. It decreases to 40dB with feedback. Calculate the feedback factor.
OR
5   Draw the circuit diagram of voltage shunt feedback amplifier and derive the expressions for voltage gain and feedback factor.

[UNIT – III]

6   With simple diagrams, explain Wein bridge oscillator and derive its frequency of oscillation.
OR
7   Explain Hartley oscillator and derive the equation for oscillation.

[UNIT – IV]

8   Draw the circuit diagram of class B push pull amplifier and explain its operation. Derive an expression for its maximum conversion efficiency.
OR
9   (a)   Explain the classification of power amplifiers.
(b)   Explain the operation of transformer coupled class A amplifier and show that it has a maximum efficiency of 50%.

[UNIT – V]

10 (a)   What is meant by linear wave shaping? Give some examples of linear wave shaping circuits.
(b)   Draw a high pass RC circuit and explain its response to a step input.
OR
11   With neat circuit diagram and waveforms, explain the operation of a monostable multivibrator and derive the expression for the pulse width.

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