Reg. No: ☐☐☐☐☐☐☐☐☐☐

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.TECH EEE II Year II Semester Supplementary Examinations May 2018
ANALOG ELECTRONIC CIRCUITS
(ELECTRICAL & ELECTRONICS ENGINEERING)

Time: **3 hours**   Max. Marks: **60**

(Answer all Five Units **5 X 12 = 60** Marks)

UNIT-I

1 **a.** Draw the block diagram of nth-stage cascaded Amplifier and derive voltage gain and current gain.   6M
  b. Analyze the two stage RC coupled amplifier using FET with neat diagram.   6M

OR

2 **a.** Explain about
  i) Half power Bandwidth   ii) Decibels   iii) Logarithm   iv) Gain -band width product   12M

UNIT-II

3 **a.** Enumerate the effects of negative feedback on the various characteristics of the amplifier.   8M
  b. What are the disadvantages of negative feedback amplifiers?   4M

OR

4 **a.** Draw the block diagram of an amplifier with feedback and explain its concept.   6M
     Derive the stabilization gain of negative feedback amplifier   6M

UNIT-III

5 **a.** In Colpitts oscillator, $C1 = 0.2$ µF and $C2 = 0.02$ µF. if the frequency of the oscillator is 10 KHz , find the value of the inductor .Also find the required gain for oscillation.   6M
  b. Draw the circuit diagram of Colpitts oscillator and explain its working.   6M

OR

6 **a.** Draw the circuit diagram of Wien- bridge oscillator and explain its working.   6M
  b. In a Wien – bridge oscillator , if the value of R is 100 KΩ, and frequency of oscillations is 10 kHz, Find the value of capacitor C.   6M

UNIT-IV

7 **a.** What are the types of Heat sinks and Explain the concept of power dissipation thermal stability.   5M
  b. Determine the power dissipation capability of a transistor which has been mounted with a heat sink having thermal resistance $\Theta_{Hs-A} = 8^0$c/w,$T_A = 40^0$c, $Tj = 160^0$c, $\Theta_{j-A} = 85^0$c/W.   7M

OR

8 **a.** Explain about Power dissipation thermal stability for a transistor.   6M
  b. In a class B amplifier, V_{CE} (min) = 2V and supply voltage V_{CC} = 15 v. Find the collector circuit efficiency.   6M

UNIT-V

9 **a.** A 10Hz square wave is fed to an amplifier. Calculate and plot the output waveform under the following conditions: The lower 3 dB frequency is
  i) 0.3 Hz   ii) 3 Hz   iii) 30 Hz   9M
  b. Write a note on free running multivibrator.   3M

OR

10 **a.** Draw and explain a high pass RC circuit with neat sketch. List features and applications.   6M
  b. Determine the upper 3-dB frequency for low pass RC circuit, if a pulse of 0.4 µsec is required to pass without distortion. Find the value of resistance if the capacitor is 0.001µF.   6M

END