Code: 15A04409

R15

B.Tech II Year II Semester (R15) Supplementary Examinations December 2018
ANALOG ELECTRONIC CIRCUITS
(Electrical & 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 is the role of emitter capacitor in RC coupled amplifier?
  (b)   What is the significance of gain bandwidth product?
  (c)   An amplifier has a gain of 2000. If the feedback ratio is 0.04, find the voltage gain of the amplifier with negative feedback.
  (d)   What is the effect of voltage series negative feedback on bandwidth of a BJT amplifier?
  (e)   A tuned collector oscillator operates at 22 kHz with a variable capacitor set to 2 nF. What is the value of tuned circuit inductance?
  (f)   Mention some of the applications of crystal oscillator.
  (g)   Distinguish between voltage amplifier and power amplifier.
  (h)   What is cross over distortion in class – B push-pull amplifier?
  (i)   Draw neatly the response of high pass RC circuit with small time constant for a square input.
  (j)   What is a Schmitt trigger?

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

UNIT – I

2   Draw and explain the circuit diagram and frequency response characteristics of RC coupled amplifier.

OR

3   With the help of a suitable circuit diagram, explain the working of direct coupled 2 stage amplifier.

UNIT– II

4   Enumerate the effects of negative feedback on the various characteristics of the amplifier.

OR

5   An amplifier with 2.5 $k\Omega$ input resistance and 50 $k\Omega$ output resistance has a voltage gain of 100. The amplifier is now modified to provide 5% negative voltage feedback in series with the input. Calculate the voltage gain, the input resistance and the output resistance with feedback.

UNIT – III

6   Describe about crystal oscillators.

OR

7   With a neat circuit diagram, explain the operation of Colpitts oscillator. Derive the expression for frequency of oscillation and the minimum gain for sustained oscillations.

UNIT – IV

8   Draw neatly the configuration of push-pull amplifier and explain its working. Derive an expression for its efficiency.

OR

9   Write short note on the following:
  (a)   Heat sinks.
  (b)   Phase inverters.

UNIT – V

10   With the help of a neat circuit diagram, explain the working of astable multivibrator. Derive an expression for frequency of oscillation.

OR

11   Briefly explain the following:
  (a)   Positive clamper.
  (b)   Sinusoidal responses of high pass RC circuit.

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