(Pages : 3)

A – 6346

Reg. No. : .....

Name : .....

Third Semester B.Tech. Degree Examination, September 2016
(2008 Scheme)
08.305 : ELECTRONIC CIRCUITS – I (T)

Time : 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions. **Each** question carries **4** marks.

1. Discuss the response of high pass filter to square wave input.
2. Find the average value of half wave rectifier output having 10 V peak value and a frequency of 50 Hz.
3. Define tilt and rise time.
4. Draw the low frequency model of a BJT.
5. Explain the stability factors S_V and S_β.
6. Differentiate between dc and ac load lines.
7. Evaluate the maximum conversion efficiency of class A power amplifiers.
8. Draw the circuit of a simple positive clamping circuit and explain.
9. Compare BJT and MOSFET amplifiers.
10. What are the advantages of class C amplifiers ? Mention its applications.

(10×4=40 Marks)

PART – B

Answer **any two** questions from **each** Module. **Each** question carries **10** marks.

Module – I

11. Draw the circuit of a Pi-section filter and derive equation for its ripple factor when used along with a bridge rectifier.

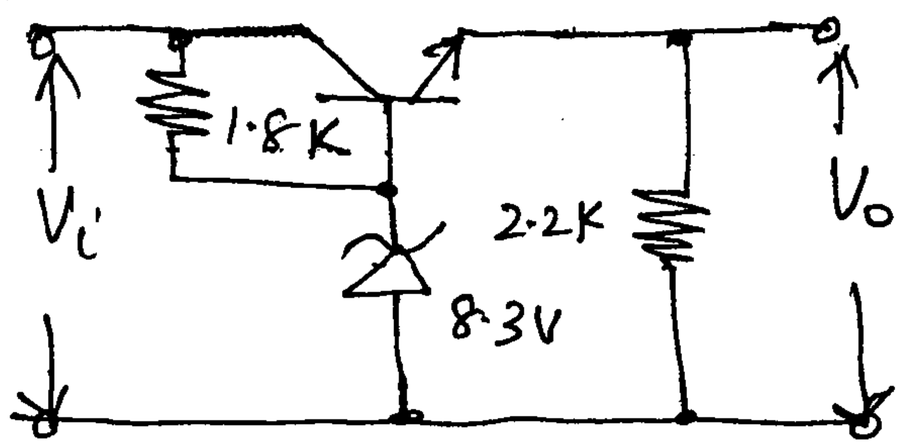
12. An ac supply of 100 V is applied to a fullwave rectifier circuit through a transformer of turn ratio 5 : 1. Assume the diode forward resistance 10 Ω and drop 0.3 V, load resistance being 150 Ω. Calculate :

    a) dc o/p voltage

    b) PIV and

    c) maximum power delivered to load.

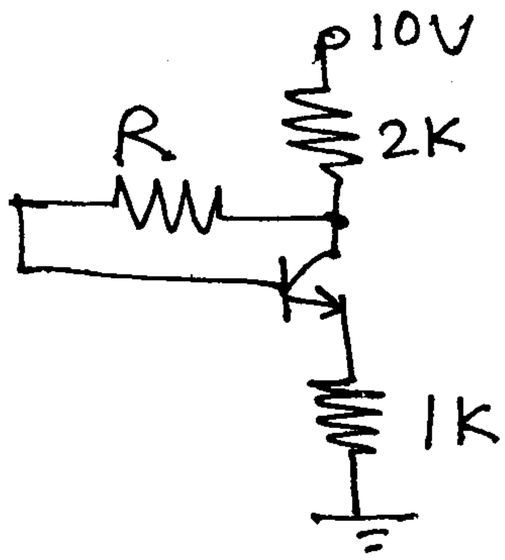
13. Calculate the output voltage and zener current in the regulator circuit $V_{BE} = 0.7$ V, $\beta = 100$ and $V_i = 20$ to 25 V.



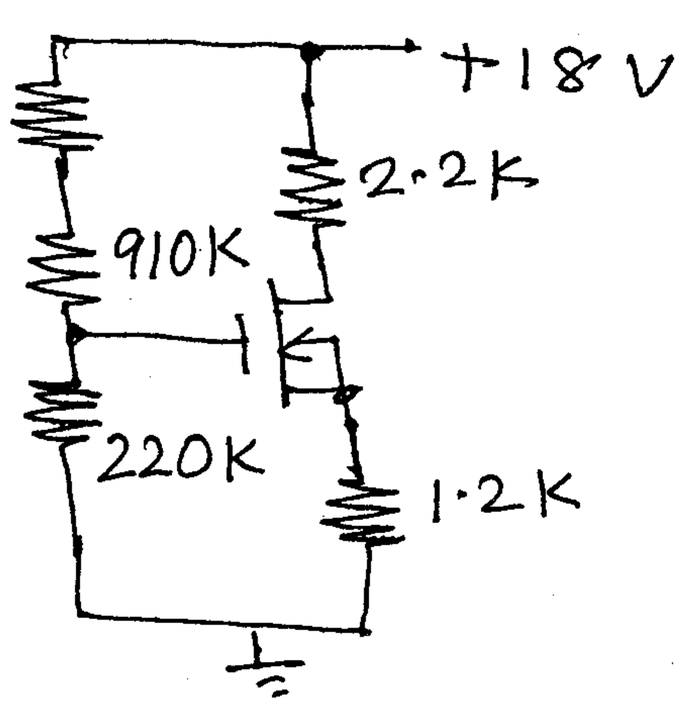
Module – II

14. Draw the circuit of RC coupled amplifier. Derive expression for voltage gain and current gain. Assume common emitter configuration.

15. For the circuit shown I_c = 1 mA. For the transistor $\beta = 100$. Determine the operating point and stability for variation of leakage current.



16. For the MOSFET $V_P = -6\,V$ and $I_{DSS} = 8$ mA. Determine the quiescent values of I_D and V_{DS}.



Module – III

17. a) How power amplifiers are classified ?

    b) Evaluate the maximum power conversion efficiency of class B power amplifier.

18. Derive expression for short circuit current gain of a BJT amplifier. Explain its significance.

19. Analyse a common base amplifier and determine voltage gain and bandwidth. Neglect lower cut-off frequency. **(6×10=60 Marks)**