



Reg. No. :

Name :

Third Semester B.Tech. Degree Examination, April 2015
13.304 : ELECTRONIC DEVICES AND CIRCUITS (FR)
(2013 Scheme)

Time : 3 Hours

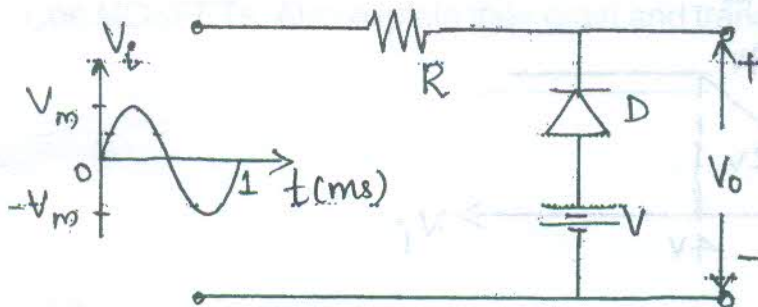
Max. Marks : 100

PART - A

Answer all questions.

(2×10=20 Marks)

1. What are the drawbacks of fixed bias circuit ?
2. What is the effect of cascading on gain and bandwidth of an RC coupled amplifier ?
3. Draw the circuit of an Hartley oscillator.
4. What is the working principle of a RC integrating circuit ?
5. Explain a simple zener diode shunt regulator circuit.
6. How the power amplifiers are classified based on the operating point of the transistors ?
7. Obtain the output waveform of the following circuit.



8. Given three input voltages V_1 , V_2 and V_3 . Design a circuit using op-amp to get an output voltage, $V_o = 10(V_1 + V_2 + V_3)$.



9. What is the working principle of TFT ?
10. What will happen if a gate voltage less than V_T , threshold voltage is applied to an n-channel enhancement type MOSFET ? (A voltage V_{DS} is applied between drain and source terminals).

PART - B

(20×4=80 Marks)

Module - I

11. a) Design a voltage divider biasing circuit for $I_C = 2\text{mA}$ and $V_{CE} = 25\%$ of V_{CC} . (Take $\beta = 100$). If an RC coupled amplifier circuit is biased in the above manner, discuss the performance of the circuit. 10

- b) Briefly explain the advantages of negative feedback. 10

OR

12. a) What are the various types of feedbacks in amplifiers ? Compare them. 10
- b) Explain the working of any two types of RC oscillator circuits in detail. 10

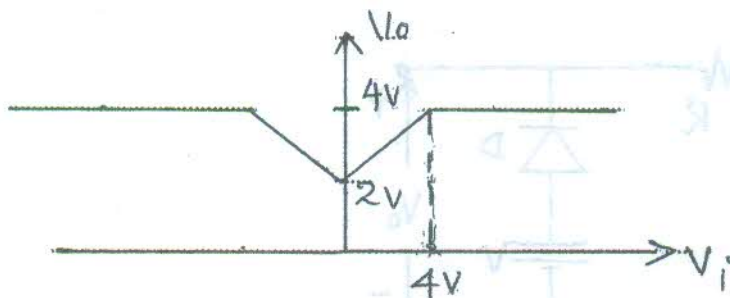
Module - II

13. a) Write notes on :

i) IC regulator 78 XX. 5

ii) Dual IC power supply LM340/LM320. 5

- b) Design a circuit to obtain the following transfer characteristics. 10



OR

14. a) Explain the working of 555 IC with a neat diagram. 10
- b) Design an astable multivibrator using 555 IC for a duty cycle of 50%. 10



Module – III

15. a) Explain why a voltage amplifier cannot be used as a power amplifier. Briefly explain double ended power amplifiers. 10
- b) Design a monostable multivibrator using op-amp for a pulse width of 2 ms and explain its working. 10

OR

16. a) Design a schmitt trigger circuit using op-amp for $|UTP| = |LTP| = 5V$. Explain its working. 10
- b) Explain first order active filters. 10

Module – IV

17. Briefly explain the following : (4x5=20 Marks)
- a) LCD
- b) Laser diode
- c) Optocoupler and
- d) Intelligent display modules.

OR

18. Explain the structure and working of an n-channel depletion type and enhancement type MOSFETs. Also explain their drain and transfer characteristics. 20

