

Code No: Z0421/R07

**Set No. 1**

**I B.Tech Supplementary Examinations, January 2014  
ELECTRONIC DEVICES AND CIRCUITS**

( Common to Electronics & Communication Engineering, Computer Science & Engineering, Electronics & Instrumentation Engineering, Bio-Medical Engineering, Information Technology, Electronics & Control Engineering, Computer Science & Systems Engineering, Electronics & Telematics, Electronics & Computer Engineering and Instrumentation & Control Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions  
All Questions carry equal marks

\*\*\*\*\*

1. Derive the expression for the deflection in an electrostatic deflection system. Hence obtain the expression for electro static deflection sensitivity. [16]
2. (a) An ideal germanium diode has a reverse saturation current of 20 ma. Find the dynamic resistance for a forward bias of 0.2V  
(b) Differentiate static and dynamic resistance. [8+8]
3. Figure 3 Shows the Circuit of a center tapped full wave rectifier circuit.

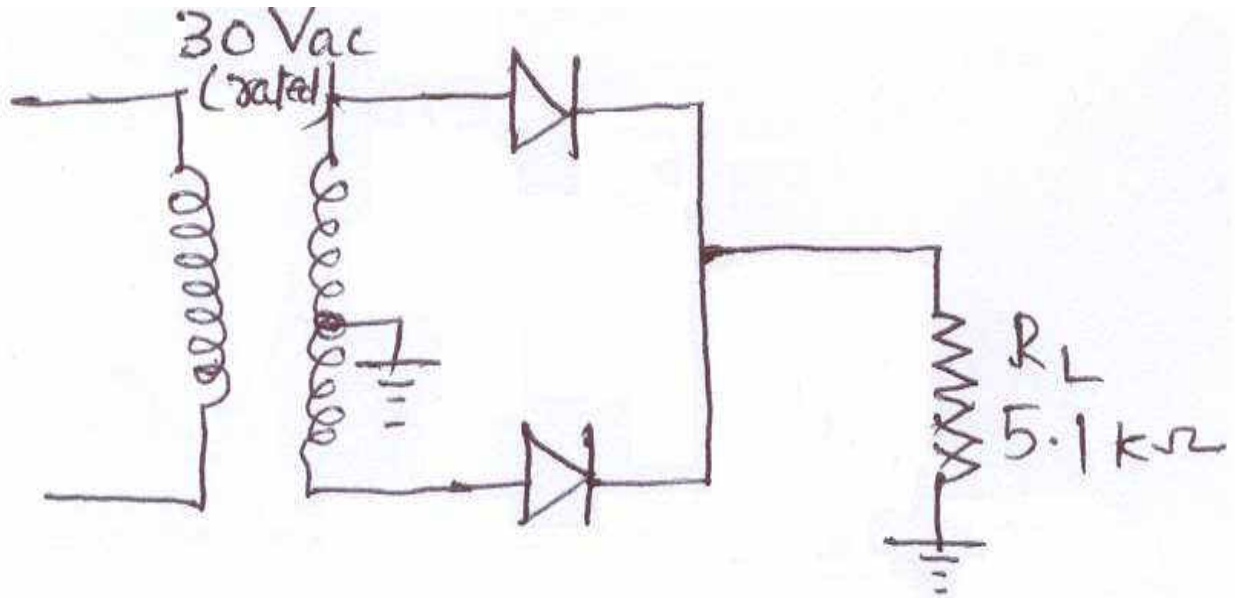


Figure 3

Determine the dc output voltage and average load current. [16]

4. Briefly explain the input and output characteristics of common collector configuration. [16]
5. (a) Explain the criteria for fixing operating point.  
(b) List out the different types of biasing methods. [12+4]
6. (a) Draw the low frequency hybrid equivalent. Circuit for CE & CB amplifier.

Code No: Z0421/R07

**Set No. 1**

- (b) Give the approximate h-parameter conversion formulae for CB and CC configuration in terms of CE.
- (c) Give the advantages of h-parameter analysis.
- (d) Give the procedure to form the approximate h - model from exact h - model of amplifier. [4+6+3+3]
7. (a) An amplifier has a voltage gain of 400,  $f_1 = 50\text{Hz}$ ,  $f_2 = 200\text{KHz}$ . and a distortion of 10% without feedback. Determine the amplifier voltage gain, new lower & upper cut off frequencies, and Distortion with feedback when a negative feedback is applied with feedback ratio of 0.01.
- (b) List out the various negative feedback types.
8. Explain briefly about frequency and amplitude stability of oscillators. [16]

\*\*\*\*\*

Code No: Z0421/R07

**Set No. 2**

**I B.Tech Supplementary Examinations, January 2014  
ELECTRONIC DEVICES AND CIRCUITS**

( Common to Electronics & Communication Engineering, Computer Science & Engineering, Electronics & Instrumentation Engineering, Bio-Medical Engineering, Information Technology, Electronics & Control Engineering, Computer Science & Systems Engineering, Electronics & Telematics, Electronics & Computer Engineering and Instrumentation & Control Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions  
All Questions carry equal marks

\*\*\*\*\*

1. What are the front panel controls of CRO? Explalin. [16]
2. Explain in detail PN junction energy band diagram of a PN diode. [16]
3. (a) What are the dis-advantages of zener diode shunt regulator?  
(b) Find:
  - i. The Load voltage,
  - ii. Voltage drop across serier resistance and ,
  - iii. Current through the zener diode. As shown in figure 3(b)iii [4+12]

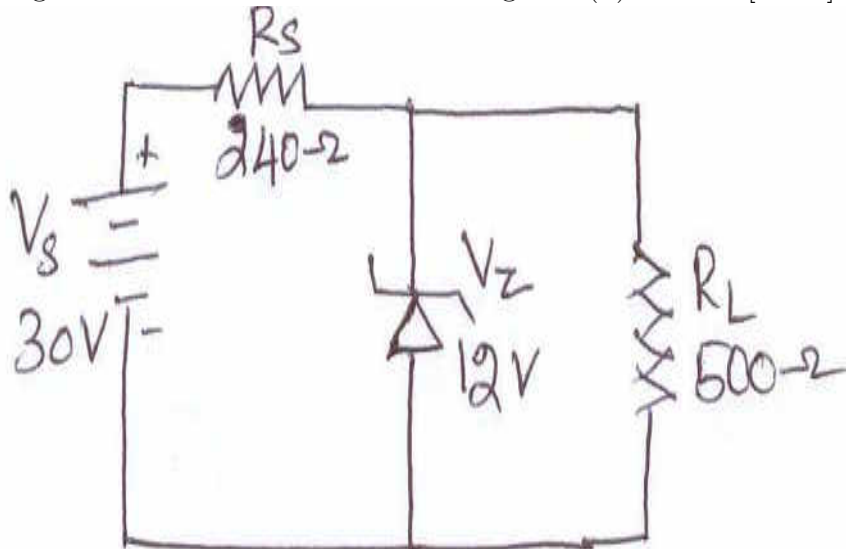


Figure 3(b)iii

4. Explain with necessary diagram the construct in & Working principle of PNP transistor. [16]
5. (a) Explain stability factor in detail.  
(b) Explain the factor affecting stability of Q point. [8+8]
6. (a) Draw the low frequency hybrid equivalent. Circuit for CE & CB amplifier.

Code No: Z0421/R07

**Set No. 2**

- (b) Give the approximate h-parameter conversion formulae for CB and CC configuration in terms of CE.
- (c) Give the advantages of h-parameter analysis.
- (d) Give the procedure to form the approximate h - model from exact h - model of amplifier. [4+6+3+3]
7. Draw the practical circuit for Current series feedback and find the voltage gain, input impedance & output impedance. [16]
8. Explain briefly about frequency and amplitude stability of oscillators. [16]

\*\*\*\*\*

Code No: Z0421/R07

**Set No. 3**

**I B.Tech Supplementary Examinations, January 2014  
ELECTRONIC DEVICES AND CIRCUITS**

( Common to Electronics & Communication Engineering, Computer Science & Engineering, Electronics & Instrumentation Engineering, Bio-Medical Engineering, Information Technology, Electronics & Control Engineering, Computer Science & Systems Engineering, Electronics & Telematics, Electronics & Computer Engineering and Instrumentation & Control Engineering)

**Time: 3 hours**

**Max Marks: 80**

**Answer any FIVE Questions  
All Questions carry equal marks**

\*\*\*\*\*

1. How will you use CRO for :
  - (a) Measurement of period and frequency
  - (b) Measurement of current in the circuit. [8+8]
2. Compare Avalanche and Zener breakdown in diodes. [16]
3. Derive the ripple factor of capacitor filter. [16]
4. Briefly explain the input and output characteristics of common collector configuration. [16]
5. (a) Explain the criteria for fixing operating point.  
 (b) List out the different types of biasing methods. [12+4]
6. (a) Write a short notes on millers theorem.  
 (b) Analyse a single stage transistor amplifier using h - parameters. [8+8]
7. The open loop gain of an amplifier is 50 and its bandwidth is 20 kHz. When a negative feedback is applied the bandwidth is increased to 25kHz (by 5 kHz). What will be the required feedback? [16]
8. Explain briefly about frequency and amplitude stability of oscillators. [16]

\*\*\*\*\*

Code No: Z0421/R07

**Set No. 4**

**I B.Tech Supplementary Examinations, January 2014  
ELECTRONIC DEVICES AND CIRCUITS**

( Common to Electronics & Communication Engineering, Computer Science & Engineering, Electronics & Instrumentation Engineering, Bio-Medical Engineering, Information Technology, Electronics & Control Engineering, Computer Science & Systems Engineering, Electronics & Telematics, Electronics & Computer Engineering and Instrumentation & Control Engineering)

**Time: 3 hours**

**Max Marks: 80**

**Answer any FIVE Questions  
All Questions carry equal marks**

\*\*\*\*\*

1. Two plane parallel plates A and B are placed 3 mm apart and potential of B is made 200 V positive with respect to plate A. An electron starts from rest from plate A. Calculate
  - (a) The velocity of the electron on reaching plate B.
  - (b) Time taken by the electron to travel from plate A to plate B, and
  - (c) Kinetic energy of the electron on reaching the plate B. [16]
  
2. (a) Short notes on LED voltage drop and current.  
 (b) Write short notes on Multi colour LED. [10+6]
  
3. Derive the ripple factor of Inductor filter. [16]
  
4. (a) Define a Transistor.  
 (b) What are the differences between Bipolar Junction transistor & Field effect Transistor?  
 (c) Write any two applications of transistor. [5+7+4]
  
5. (a) Explain the simpler way of drawing dc load line.  
 (b) Calculate the dc bias voltage and currents in the circuit shown in figure 5b (Neglect  $V_{BE}$  Of Transistor). [8+8]



Code No: Z0421/R07

Set No. 4

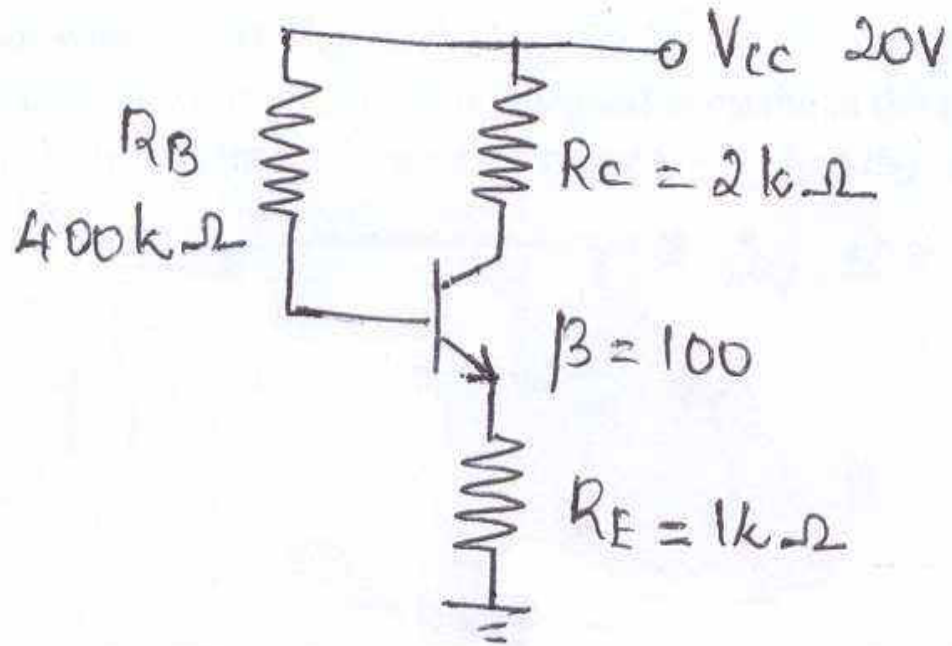


Figure 5b

6. (a) Draw the low frequency hybrid equivalent. Circuit for CE & CB amplifier.  
 (b) Give the approximate h-parameter conversion formulae for CB and CC configuration in terms of CE.  
 (c) Give the advantages of h-parameter analysis.  
 (d) Give the procedure to form the approximate h - model from exact h - model of amplifier. [4+6+3+3]
7. Enumerate the effects of negative feedback on the various characteristics of the amplifier. [16]
8. (a) With a neat circuit diagram, explain the principle of operation of a RC phase shift oscillator using FET.  
 (b) What are the differences between RC phase shift oscillator & wein bridge oscillator? [12+4]

\*\*\*\*\*

