

EC8353 ELECTRON DEVICES AND CIRCUITS
NOV/DEC-2019-IMPORTANT UNIVERSITY QUESTIONS

PART-B

NOTE:

- i. All the Students are advised to study the **highlighted** questions first (**must**).
- ii. *** questions ,70-90 % repeated in university exams.
- iii. ** questions ,50-60 % repeated in university exams.
- iv. * questions ,may have 20-30 % chances to come.
- v. You have to select and study the questions according to your desired grade.

UNIT-I

1. With the neat sketch explain the construction, operation and its characteristics of PN junction diode. Also list its advantages, disadvantages and its applications.***
2. Explain the operation of Zener diode and its forward and reverse characteristics. Also distinguish between avalanche and Zener break downs.***
3. Explain the working of full wave rectifier. Give the expressions for RMS current, PIV, ripple factor and efficiency.***
4. Draw the circuit diagram of a half wave rectifier for producing a positive output voltage. Explain the circuit operation and sketch the waveforms.* **
5. Briefly discuss about the following:
 - I) laser diodes.*
 - II) Zener diode as a voltage regulator.***
 - III) LED*
6. problems on (i) Diode current equation.**
(ii) rectifier circuits.*
(iii) zener voltage regulator.*

UNIT-II

1. With a neat sketch, explain the construction, operation and characteristics of SCR.***
2. With the help of suitable diagram, explain the working of Enhancement MOSFET.***
3. Describe the construction and working of UJT with it's equivalent circuit and V-I characteristics.***
4. Draw the circuit diagram of CE configuration and explain its operation with input and output characteristics.***
5. Explain the construction, operation and characteristics of N-channel and P-channel J-FET..** *

6. Explain the working of NPN and PNP transistor. *
7. Compare the various methods of biasing using BJT in terms of their stability factors.*
8. Describe how a JFET can be used as a voltage variable resistor.*
9. Problems on current amplification factor (α , β).**
10. Problems on biasing circuits.*** (fixed bias, voltage divider bias)

UNIT-III

1. Draw the h-parameter model of a BJT-CE amplifier and derive the equations for voltage gain, current gain, input impedance and output impedance.***
2. Problems on ***
 - (i) CB amplifier (to find voltage gain, current gain, input resistance, output resistance)
 - (ii) CE amplifier
 - (iii) CC amplifier
3. Compare CB, CE and CC amplifiers.***
4. Derive the expression for the voltage gain of CS amplifier.**

UNIT-IV

1. With neat sketch, explain the BJT differential amplifier with active load and derive for A_c, A_d and CMRR. how CMRR can be improved.***
2. problems on differential amplifier.***
3. What is neutralization ? Explain any one method in brief.***
4. compare voltage and power amplifiers.***
5. Explain the operation of class B push pull amplifier.**
6. with neat circuit, explain and derive the gain and bandwidth of a single tuned amplifier.**

UNIT-V

1. Describe and explain the operation of the following oscillators.***
 - (i) Hartely oscillator
 - (ii) Colpitts oscillator
2. Explain the following with neat diagram***
 - (i) RC phase shift oscillator
 - (ii) Wein bridge oscillator.
3. Determine R_{if} , R_{of} , A_v and A_{vf} for the following: **
 - (i) voltage shunt feedback amplifier
 - (ii) current series feedback amplifier
4. Explain the operation of crystal oscillator.*
5. problems on oscillator**
6. Discuss the advantages and disadvantages of negative feedback amplifier.**