S. B. Roll. No……

BASIC ELECTRONICS
2nd Exam/ECE/CSE/IT/MECHATRONIC/0190/Jun'2022
(For 2018 Batch Onwards)

Duration: 3Hrs. **M.Marks:75**

SECTION-A

Q1. Give answer in one line. **15x1=15**

a. What are majority carriers in n-type semiconductors
b. Pure semiconductor is doped with what kind of impurity (name with valency) to get p-type semiconductor.
c. What is the value of barrier potential in Silicon
d. What happens to the depletion layer when we reverse bias a diode?
e. No. Of diodes used in half wave, full wave centre tap and bridge rectifier
f. Give relation between α and β
g. Name the three layers of transistor.
h. Out of the three layers of transistor, which one is heavily doped?
i. Name the junction in a transistor which is forward biased for proper working.
j. What is the phase difference between input and output waveform in common emitter amplifier
k. Name a device (diode) which shows negative resistance
l. Draw symbol of a pnp transistor
m. Which diode is used as a voltage regulator
n. Name the three terminals of JFET
o. What is full form of PIV

SECTION-B

Q2. Attempt any six questions. **6x5=30**

i. Classify different type of semiconductors.
ii. Explain the concept of depletion layer. Why it is so called?
iii. Draw and explain the characteristics of p-n junction diode.
iv. Explain concept of rectifier efficiency and ripple factor.
v. Explain the working of a transistor in common base mode.
vi. Derive relation between α and γ.
vii. Give three reasons why biasing is essential.
viii. Explain voltage divider biasing.
ix. Explain with diagram the operation of enhancement type MOSFET.

SECTION-C

Q3. Attempt any three questions. **3x10=30**

a. Explain with wave-shapes the full wave Bridge rectifier circuit.
b. Draw and explain single stage transistor amplifier circuit
c. Compare JFET, MOSFET, BJT
d. Draw and explain the input and output characteristics of common emitter configuration of transistor.
e. Explain the construction and working of JFET