

Department of Electrical Engineering
Assignment

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Course Details

Course Title: Electronics
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Ans No :-> 1 Part (A)

Full-wave and Half-wave Rectification.

Full-wave rectification rectifies the negative component of the input voltage to a positive voltage then converts it into DC (pulse current) utilizing a diode bridge configuration. In contrast, half-wave rectification remove just the negative voltage component using a single diode before converting to DC.

Rectification methods to convert AC (Alternating current) to DC (Direct current) include full-wave rectification and half-wave rectification. In both cases, rectification is performed by utilizing the characteristic

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that current flows only in the positive direction in a diode.

Ans no \rightarrow 1 part (B)

Difference Between intrinsic and Extrinsic Semiconductor

The intrinsic and Extrinsic semiconductors are distinguished from each other considering various factors such as doping or the addition of the impurity, density of electrons and holes in the semiconductor material, electrical conductivity and its dependency on various other factors.

The difference between the two types of the semiconductor is given below in detail.

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① Doping of impurity

Doping or addition of impurity does not take place in intrinsic semiconductor

A small amount of impurity is doped in a pure semiconductor for preparing extrinsic semiconductor.

② Density of electrons and holes

The number of free electrons in the conduction band is equal to the number of holes in the valence band.

The number of electrons and holes are not equal.

③ Electrical conductivity

Electrical conductivity is low.

Electrical conductivity is high.

④ Dependency of electrical conductivity

Electrical conductivity is a function of temperature alone.

Electrical conductivity depends on temperature as well as on the amount of impurity doping in the pure.

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Ans No :-> 02

part (A)

BJTs and FETs can be used as switches and amplifiers in electrical and electronics circuits. The major difference between BJT and FET is that, in a field effect, whereas in BJT both majority and minority charge carriers flow.

The key difference between BJT and JFET is that BJT is a device in which output current is controlled by the base current. on the contrary, JFET is a device whose output current is controlled by the input voltage applied to it.

what is Transistor

A transistor is a semiconductor device used to amplify or switch electronic signals and electrical power. it is

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composed of semiconductor material usually with at least three terminals for connection to an external circuit.

Ans No: \rightarrow 02

part (B)

Non inverting amplifier is one in which the output is in phase with respect to input (i.e. if you apply a positive voltage, output will be positive). output is an non inverted (in terms of phase) amplified of input.

The amplifier which has 180 degrees out of phase output with respect to input is known as an inverted amplifier, whereas the amplifier which has the o/p in phase with respect to i/p is known as a non inverting amplifier.

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The term op-amp is basically operational amplifier. It is a voltage amplifying device. It uses exterior feedback components between its inputs as well as output terminals like resistor & capacitors. An ideal operational amplifier has different characteristics which include the gain of open-loop infinite, the input resistance is infinite, o/p resistance is zero, offset is zero and high BW. An op-amp includes three terminals namely two inputs ~~for~~ and one output. The two input terminals are inverting and non-inverting whereas the third terminal is output. These amplifiers are widely used to execute mathematical operations and in signal conditioning because they are almost ideal for DC amplification. This article discusses the main difference between inverting and non-inverting amplifier.

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Ans No \rightarrow 3

part (A)

This is also called as linear region. A transistor while in this region, acts better as an Amplifier. This region lies between Saturation and cutoff. The transistor operates in Active region when the emitter junction is forward biased and collector junction is reverse biased.

a) When both collector-base and base-emitter junction is reverse biased, it is the Active region.

b) When both collector-base and base-emitter junction is forward biased, it is the Saturation region.

Ans No : \rightarrow 3

Part (B)

The main difference between the two types of transistors is that holes are the more important carriers for PNP transistors, whereas electrons are the important carriers for NPN transistors.

In other words for a PNP transistor, the Emitter is more positive with respect to the Base and also with respect to the Collector.

The difference b/w the NPN and PNP transistor is, an NPN transistor turns on when the current flows through the base of the transistor.

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In this types of transistor, the current flow from the collector (C) to the emitter (E). A PNP transistor turns ON, when there is no current at the base of the transistor.

The
End