GREEN UNIVERSITY OF BANGLADESH

Department of Computer Science & Engineering

CLP

Course Code: EEE-204

Course Title: Electronics lab

Experiment Number : 01
Experiment Name : Study of Diode I-V Characteristic

Date of Performance : 17.02.2021
Date of Submission : 14.04.2021

Submitted to:	Submitted by:
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Designation : Lecture	ID : 193002101
Dept : EEE	Dept. : CSE

Remark

Experiment no: 01

1. what is Diode?

⇒ Diode is an electrical component that allows the flow of current in only

2. what is depletion region in p-n junction?

= Depletion region in a pn junction is a layer.

3. The capacitance of a reverse biased pn junction?

= Increase as reverse bias is decreased.

4. For a pn junction diode, the current in reverse bias may be?

= few micro or nano amperes.

5. what is doping?

= Process of adding impurity to a intrinsic semiconductor atom is doping the impurity is called dopant.

6. What is Reverse saturation current?

= The current due to the minority carriers in reverse bias is said to be reverse saturation current.

7. What is meant by biasing a PN junction?

= connecting a PN junction to an external voltage source is biasing a PN junction.

8. What is Intrinsic semiconductor?

= Pure form of semiconductors are said to be intrinsic semiconductor.

9. What are Semiconductors?

= the materials whose electrical property lies between those of conductors and insulators are known as semiconductors.

10. Define Hall effect?

= If a metal ~~are~~ carrying current I is placed in a transverse magnetic field. an electric field is induced in the direction perpendicular to both I and B. this phenomenon is known as Hall effect.

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Course Code: EEE-204

Course Title: Electronics lab

Experiment Number : 02
Experiment Name : Study of Diode Rectifier Circuits

Date of Performance : 23.02.2021
Date of Submission : 14.04.2021

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Remark

Experiment NO:02

1. what is a Rectifier?

= A rectifier is a device which converts AC to DC current.

2. Name the basic types of rectifiers?

= Half wave rectifier, Full wave center tap rectifier and full wave bridge rectifier.

3. what is efficiency of a rectifier?

= the ratio of DC output power to the applied AC input power is known as the efficiency of a rectifier.

4. what is form factor?

= It is the ratio of RMS value to the Average value

5. what is peak factor?

= the ratio of maximum value to the RMS value.

6. what is called Ripple voltage.?

= Ripple voltage in a rectifier output the amount ~~is the~~ of AC content present in the output DC, it causes periodic pulsating of the DC voltage which is derived from the AC source.

7. what is the TUF of a half wave rectifier?

= TUF of a half wave rectifier 0.2865

8. what is the maximum efficiency (η) of a half wave and full wave rectifier?

= Half wave rectifier -40.6% and full wave rectifier -81.2%.

9. what is time constant?

= the time required for a current turned into a circuit under a steady electromotive force to 0.632 of its final strength.

10. what is capacitor?

= A capacitor is a device that stores electric charge in an electric field.

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Course Code: EEE-204

Course Title: Electronics lab

Experiment Number : 03
Experiment Name : Study of Operational Amplifier as Zero Crossing & Voltage Level Detectors

Date of Performance : 02.03.2021
Date of Submission : 14.04.2021

Submitted to:
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Remark

Experiment NO: 03

1. What is an operational Amplifier?

= An operational amplifier is an integrated circuit that can amplify weak electric signals.

2. In OP-Amps which type of noise occurs due to discrete flow of current in the device?

= shot noise.

3. which among the following is a nonlinear application of OP-Amp?

a. V to I converter.

b. precision rectifier?

4. what is the feedback factor of voltage follower circuit?

= unity

5. For an ideal comparator what should be the value of the response time?

= zero.

6. Express CMRR of an OPAMP?

= CMRR = A_d/A_c; expressed in decibels.

7. what is input offset voltage?

= A small voltage applied to the input terminals to make the output voltage as zero when two point terminals are grounded is called input offsert voltage.

8. A zero level detector is a ?

= comparator with a trip point referenced to zero.

9. what is the effect of high frequency on a practical OPAMP performance?

= the open loop gain decreases at higher frequency the close loop gain increases at higher frequency.

10. How many stages a bipolar OPAMP has?

= 3 stages.

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Department of Computer Science & Engineering

CLP

Course Code: EEE-204

Course Title: Electronics lab

Experiment Number : 04
Experiment Name : Study of Operational Amplifier as an Amplifier

Date of Performance : 30.03.2021
Date of Submission : 14.04.2021

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Remark

Experiment no: 09 (a)

1. what is Amplifier?

= Amplifier is a device that makes sound louder and signal level greater.

2. what is the formula for non Inverting Amplifier?

= the formula for non inverting ~~amplifier~~ Amplifier is given as $1 + R_f/R$;

3. which OPAmp don't have feedback loop?

= comparator OPAmp don't have feedback loop.

4. what indicates the speed of a comparator?

= Response time and Propagation delay.

5. for an ideal comparator, what should be the value of the response time?

= zero.

6. what is the feedback factor of voltage follower circuit?

= Unity.

~~7. Superposition theorem?~~

7. which theorem is applicable to determine the expression for output voltage for non-inverting adder?

= superposition theorem.

8. name a non-linear application of ~~OP-AMP~~

= Precision rectifier.

9. what happens in DAC when we increase the number of bits?

= Resolution increases.

10. what is CMRR?

= CMRR is defined as the ratio of differential voltage gain to common mode voltage gain.

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Course Code: EEE-204

Course Title: Electronics lab

Experiment Number : 05
Experiment Name : Study of Mathematical Operations Using Op Amp

Date of Performance : 06.04.2021
Date of Submission : 14.04.2021

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Remark

Experiment no: 9(b)

1. what is amplifiers?

= Amplifiers is a device that makes sound louders and signal level meatere.

2. what is perfect Balance in op-Amp?

= perfect balance is the characteristics of ideal op-Amp and if there is a same input applied then we will get the output zero. In this condition it is known as perfect balance.

3. write the characteristices of a voltage followere?

= has a voltage gain of 1, has no feedback resistor.

4. the node voltage at the top of the fil resistor is close to?

= zero.

5. the differential voltage gain of a differential amplifiere is equal to RC divided by

= 2RC

6. What is a voltage follower?

= Voltage follower is an electronic circuit in which output voltage tracts the input voltage both in sign and magnitude.

7. Give the typical value of bias current for CQA 741 operational amplifier?

= 80nA

8. what is an integrator?

= An ~~integr~~ integrator is a circuit that performs a mathematical operational called integration.

9. name ~~a~~ for a unity gain amplifier is?

= voltage follower

10. A noninverting closed loop OPAMP circuit generally has a gain factor?

= greater than one.