Advanced Learners & Facility

SITAM

SATYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT

Gajula Rega, Vizianagaram, ANDHRA PRADESH, INDIA-535002

(NAAC Accredited, Approved by A.I.C.T.E & Permanently Affiliated to JNTU, Kakinada)

Tele Phone No: 9676788811/33/44, Land Line: 08922-234775/76/74

E-Mail: sitam@sitam.co.in Website: www.sitam.co.in

DEPARTMENT OF CIVIL ENGINEERING

List of Advanced Learners

Second Year

Semester_I

S.No	Registration No
1	20B61A0111
2	20B61A0112
3	20B61A0127
4	21B65A0113

Semester_II

S.No	Registration No
1	20B61A0107
2	20B61A0111
3	20B61A0112
4	20B61A0114
5	20B61A0115
6	20B61A0117
7	20B61A0120
8	20B61A0127
9	21B65A0106
10	21B65A0107
11	21B65A0113
12	21B65A0114

Third Year

Semester_I

S.No	Registration No
1	19B61A0102
2	19B61A0105
3	20B65A0101
4	20B65A0102
5	20B65A0104
6	20B65A0105
7	20B65A0109

SPOC, IQAC
SITAM, GAJULAREGA
VIZIANAGARAM, A.P. INDIA

Principal
Satya Institute of Technology and Management
Vizianagaram

Semester_II

S.No	Registration No
1	19B61A0102
2	19B61A0105
3	20B65A0101
4	20B65A0104
5	20B65A0105
6	20B65A0109

Final Year
Semester_I

S.No	Registration No
1	18B61A0101
2	18B61A0104
3	19B65A0102
4	19B65A0103
5	19B65A0106
6	19B65A0107
7	19B65A0118
8	19B65A0119

Semester_II

S.No	Registration No
1	18B61A0101
2	18B61A0102
3	18B61A0104
4	19B65A0101
5	19B65A0102
6	19B65A0103
7	19B65A0104
8	19B65A0105
9	19B65A0106
10	19B65A0107
11	19B65A0109
12	19B65A0114
13	19B65A0115
14	19B65A0118
15	19B65A0119
16	19B65A0120

SPOC, IQAC
SITAM ... REGA
VIZIANAGARAM, A.P. INDIA

Principal
Satya Institute of Technology and Management
Vizianagaram

SITAM
SATYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT
Gajularega, Vizianagaram, Andhra Pradesh, India-535002.
Accredited by "NAAC"
Approved by AICTE and Affiliated to JNTUK, KAKINADA
Email: sitam@sitam.co.in, Website:www.sitam.co.in
Telephone No:9676788811, 8978812341/2, Land Line: 08922-234775

Department of Electronics and Communication Engineering

List of Advanced Learners

Second Year

Sem-1

Sl.No	REGISTER No
1	20B61A0401
2	20B61A0407
3	20B61A0408
4	20B61A0413
5	20B61A0416
6	20B61A0419
7	20B61A0426
8	20B61A0428
9	20B61A0430
10	20B61A0435
11	20B61A0438
12	20B61A0443

Sem-2

Sl.No	REGISTER No	Sl.No	REGISTER No
1	20B61A0401	16	20B61A0430
2	20B61A0402	17	20B61A0431
3	20B61A0407	18	20B61A0435
4	20B61A0408	19	20B61A0436
5	20B61A0412	20	20B61A0438
6	20B61A0413	21	20B61A0443
7	20B61A0416	22	21B65A0401
8	20B61A0418	23	21B65A0402
9	20B61A0419		
10	20B61A0420		
11	20B61A0422		
12	20B61A0423		
13	20B61A0424		
14	20B61A0425		
15	20B61A0428		

SPOC, IQAC
SITAM, GAJULAREGA
VIZIANAGARAM, A.P. INDIA

Principal
Satya Institute of Technology and Management
Vizianagaram

Third Year

Sem-1

Sl.No	REGISTER No
1	19B61A0417
2	19B61A0419
3	20B65A0402
4	20B65A0405
5	20B65A0406

Sem -2

Sl.No	REGISTER No
1	19B61A0414
2	19B61A0419
3	20B65A0404
4	20B65A0405
5	20B65A0406
6	20B65A0407

Final Year

Sem-1

Sl.No	REGISTER No	Sl.No	REGISTER No
1	18B61A0402	10	18B61A0416
2	18B61A0403	11	18B61A0420
3	18B61A0404	12	18B61A0421
4	18B61A0405	13	18B61A0422
5	18B61A0408	14	18B61A0424
6	18B61A0410	15	18B61A0427
7	18B61A0411	16	19B65A0401
8	18B61A0413	17	19B65A0402
9	18B61A0414	18	19B65A0403

SPOC, IQAC
SITAM, GAJULAREGA
VIZIANAGARAM, A.P. INDIA

Principal
Satya Institute of Technology and Management
Vizianagaram

May 30, 2007

Network Theory

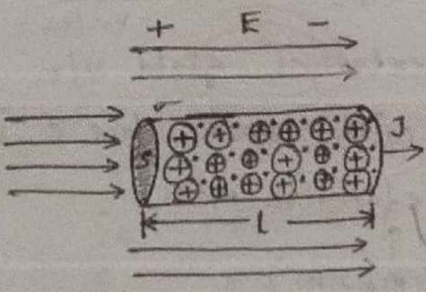
1. Basics
2. Theorems
3. L.T.
4. Transients < dc / ac
5. Ac Analysis

Ref.

1. Network Analysis – Van valkenburg
2. ✓ Engg. circuit analysis – Hayt & kemmerly
3. previous papers : GK pub.
   (i). GATE < EE / EC (1990 – 2007) / INSTRUMENTAL
   (ii). IES < EE / EC (1994 – 2006)
   (iii). IAS – Prelims – EE

Basics.

→ The mechanism of energy flow through the conductor and ohm's law:-



$\oplus \Rightarrow Ag^{+}$ ion, immobile, larger in size ie 10^3 times than $\bar{e}$.

$\bullet \Rightarrow$ free e^-

→ $Ag^{+1} \rightarrow +1$
$Cu^{+2} \rightarrow +2$
$Au^{+2} \rightarrow +2$
$Al^{+3} \rightarrow +3$

→ The mobility of free ē's in a Ag, is several times to that of other conductors so its conductivity is very high.

→ Generally in any conductor (ie per unit cube), there are 10^{18} to 10^{23} atoms per unit volume and hence there are 10^{18} to 10^{23} free ēs per unit volume in a Ag conductor. ie every conductor is a very rich of free ēs.

→ In the presence of external field different free ē will under go diff. forces [due to a large no. of free ēs] and hence they will move with diff. velocity. But only one velocity is defined, so called drift velocity. It is an avg. velocity of all the free ēs within a conductor. and is given by $v_d = \mu E$ m/s.

μ = mobility of free ēs $\frac{m^2}{V-sec}$

E - Applied external field V/m

→ The K.E. associated with each free ē is

$KE = \frac{1}{2} m_e v_d^2$ J — effective mass

$m = 9.11 \times 10^{-31}$ kg ($m_e \neq m$)

m_e is the mass of free ē while it is in a motion.

The first Half of the Ohm's experiment when the conductor not carrying electrical energy E = 0 :-

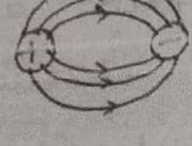
→ when E = 0 ⇒ $v_d = 0$ ⇒ K.E = 0

ie all the free ē are in the rest.

→ Since the conductor is operating at room temp. (27°c or 300°K), diff free ēs will acquire diff thermal energies [due to a Large no. of free ē] and hence they will move in diff. directions in a random manner the net flow of ē motion, in any direction zero, ie the charge motion is zero and the i is zero and also the current density [J] is zero.

ie when E = 0, then J = 0.

Second Half of ohm's experiment, when the conductor is carrying electrical energy [E ≠ 0] :-



when the conductor is subjected to an axial electric field, the force will be exerted on every free ē.

ie. $\vec{f} = \vec{E} \cdot e$ N

$e = -1.6 \times 10^{-19}$ c

Since 'e' is -ve, there exists the direction of force is in opposite to that of E. and hence there exists a net ē motion ie the charge motion in the direction opposite so that of 'E'.

The magnitude of charge is given by

$q = ne$ C , n = no. of free $\bar{e}$ s crossing a reference cs area, a variable quantity due a large no. of free $\bar{e}$.

$e = -1.6 \times 10^{-19}$ C

→ The time rate of flow of electric charges is nothing but the electric i ie

$$i = \frac{dq}{dt} \text{ A}$$

Since q is -ve, the conventional current direction is opposite that of the charge motion ie $\bar{e}$ motion [ie in the dire. of 'E']

The current per unit cs area is nothing but the current density resulted within a conductor

ie $J = \frac{i}{s}$ A/m^2

Since 's' is a scalar, the dire. of 'J' is in the dire. of 'i', ie in the dire. of E.

Acc. to. Ohm, there exists a linear relation b/w the applied electric field and resulting current density by $J \propto E$

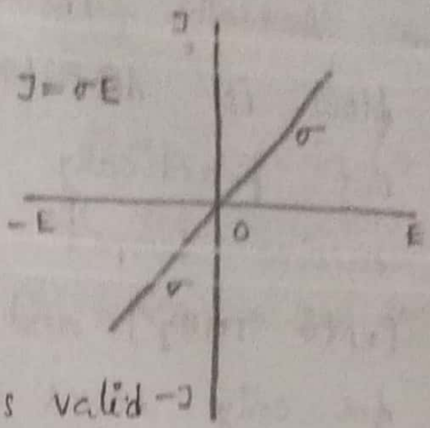
$J = \sigma E$ → Ohm's law in the field theory form.

σ → conductivity of the conductor.

J-E characteristics :-

At the origin

$E=0 \Rightarrow J=0$ and σ is not equal to zero.



Limitation:-

The ohm's law is valid only when proportionality const. σ is const. ie the temp. is kept constant condition.

At the const. E, as temp. increases from room temp. there exists an increase in collisions among the free ē's and hence the mobility falls, so the conductivity decreases. [Here the collisions b/w the free ē's and +ve ions are assumed to be const., since E is kept constant.].

At a const. TEMP. as 'E' increases there exists an increase in collisions b/w the free ē's and the +ve ions [Larger in size], which results the fall Lost in v_d and hence the lost in K.E. this losted energy will be dissipated in the form of heat, which results the volt. drop across the conductor. [Here the collisions amount, the free ē's are assumed to be const, since the temp. is kept const.