

KADI SARVA VISHWAVIDHYALAYA

BE 3rd Semester CE/ I T Dept.
Examination - 2015

Sub code: CE/IT - 302

Date: 1-12-15

Time: 10:30 to 1:30

Sub Name: Linear Electronics

Total Marks: 70

Instructions:

1. Answer Each Section in Separate Answer sheet.
2. Use of Scientific Calculator is permitted. .
3. All questions are separate
4. Indicate clearly, the options you attempted along with its respective question number.
5. Use the last page of supplementary for rough work.

SECTION I

- Q.1 (a)** Explain Hall effect. [05]
(b) Explain Comparison of CE,CB and CC. [05]
(c) Derive Relation of BJT parameter α , β and γ . [05]
- OR**
- (c)** Draw symbol Zener diode and explain its characteristic. [05]
- Q.2 (a)** Explain SMPS. [05]
(b) Compare between in Transition Diode Capacitance and Diffusion Capacitance. [05]
- OR**
- Q.2 (a)** Explain energy band diagram of insulator, semiconductor and conductor. [05]
(b) Explain CE Configuration. Draw and explain Input and output characteristic. [05]
- Q-3 (a)** Explain Mobility and Conductivity. [05]
- (b)** A sinusoidal Voltage of amplitude 25 volts and frequency 50HZ is applied to half wave rectifier using PN diode. Load Resistor is 1000Ω . And forward resistance R_f is 10Ω . Calculate 1) peak, average and rms value of current. 2) d.c power out put. 3) Rectifier Efficiency.
- OR**
- Q-3 (a)** Difference Between Half wave rectifier and Full wave Rectifier. [05]
- (b)** For N-channel JFET $I_{DSS} = 8.7\text{mA}$, $V_p = -3\text{V}$ and $V_{GS} = -1\text{V}$. Find the value of I_D , g_m and g_m . [05]

SECTION II

- Q.4 (a)** What is transducer? Explain Liner Variable Differential Transducer.(LVDT). [05]
(b) Explain working of CRT. [05]
(c) Difference between JFET and BJT. [05]
- OR
- (c)** Explain Classification of FET. [05]
- Q.5 (a)** Explain Temperature Transducer. [05]
(b) Explain colpitt's oscillator [05]
- OR
- Q.5 (a)** Explain wienbridge oscillator. [05]
(b) Explain Timer IC555. [05]
- Q-6 (a)** Explain Enhancement-type MOSFET operation ,working construction and characteristics. [05]
(b) Explain Block diagram of Digital Multi Meter. [05]
- OR
- Q-6(a)** Explain Block diagram of DSO. [05]
(b) Explain Idea op-amplifier characteristics. [05]

Best Luck

KADI SARVA VISHWAVIDHYALAYA

BE 3rd Semester CE/IT Dept.

Examination – 2014

Sub code: CE/IT 302

Date: 24/04/2014

Time: 10:30am to 01:30pm

Sub Name: linear Electronics

Total Marks: 70

Instructions:

1. Answer Each Section in Separate Answer sheet.
2. Use of Scientific Calculator is permitted. .
3. All questions are separate
4. Indicate clearly, the options you attempted along with its respective question number.
5. Use the last page of supplementary for rough work.

SECTION I

- Q.1 (a)** Explain mobility, drift current and current density. [05]
(b) Explains series & parallel clipping circuits. [05]
(c) what is rectifier? Explain full wave bridge rectifier. [05]

OR

- (c)** Explain energy band diagram of insulator, semiconductor and conductor. [05]

- Q.2 (a)** Explain Hall effect. Derive expression of Hall voltage and state its applications. [05]
(b) Explain Diode Resistance. [05]

OR

- Q.2 (a)** Explain photo Diode & photo transistor. [05]
(b) State and Prove Clamping Theorem. [05]

- Q-3 (a)** Explain Comparison of CE,CB & CC Configuration. [05]
(b) Draw & Explain the circuits of op-amp based WeinBridge Oscillator. [05]

OR

- Q-3 (a)** Explain difference between FET vs BJT [05]
(b) Draw & Explain the circuits of Hartley Oscillator. [05]

SECTION II

- Q.4 (a)** Draw the Symbol [05]
(a) p-channel Depletion type MOSFET (b) n-channel enhancement MOSEFT
(c) n-channel JFET (d) LED (e) Zener Diode
(b) Explain Ideal OP-AMP & Important characteristics. [05]
(c) Explain Block diagram Timer IC55. [05]

OR

- (c)** Explain Block diagram CRO. [05]

- Q.5 (a)** Explain LVDT. [05]
(b) Explain parameters of JFET [05]

OR

- Q.5 (a)** Explain SMPS block diagram. [05]
(b) Explain n-channel Depletion type MOSFET [05]
- Q-6 (a)** The RC network of Wein bridge oscillator consists of resistor and capacitor of values $R=220\text{k}\Omega$ and $C=250\text{ PF}$. Determine the frequency off oscillation. [05]
(b) Draw & Explain R-C phase shift oscillator. [05]
- OR**
- Q-6(a)** Define CMRR. How to increased using constant current source. [05]
(b) For the circuit shown in Fig. 1, explain working of the circuit and draw output Waveform Given input signal [05]

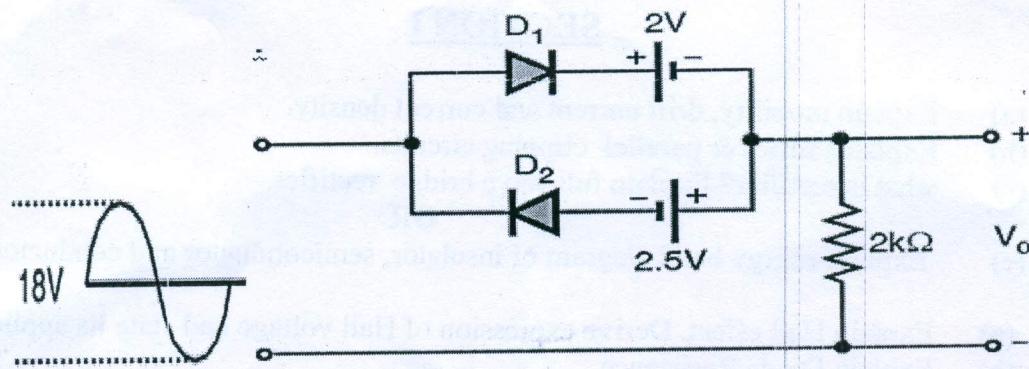


Fig-1

KADI SARVA VISWAVIDYALAYA

B.E. Semester 3rd CE, IT

Subject Code: - CE302-IT302 Subject Name: - LINEAR ELECTRONICS

Date: - 25/11/2013 Time: - 10 am to 1pm Total Marks: - 70

Instructions:

1. Answer each section in separate Answer sheet.
2. Use of Scientific calculator is permitted.
3. All questions are **Compulsory**.
4. Indicate **clearly**, the options you attempt along with its respective question number.
5. Use the last page of main supplementary of **rough work**.

Section - I

Q- 1. (All Compulsory)

(A) Define: (1) 1eV (2) Electric field intensity (3) Diffusion (4) Thermister
(5) Which impurity added in semiconductor and Why? [5]

(B) Comparison of Semiconductor, Insulator and Conductor. [5]
(C) Explain mobility and derive expression of conductivity of conductor. [5]

OR

(C) Explain Hall Effect. [5]

Q-2. Answer the following question.

(A) Explain Center tap FWR with all waveform. [5]
(B) Comparison between Conventional diode, photo diode, Zener diode, LED. [5]

OR

(A) Explain Bridge FWR with filter circuit. [5]
(B) Explain Diode operation: forward and reverse bias with characteristics [5]

Q-3. Answer the following question.

(A) Derive expression of collector current and current gain of CB, CC configuration. [5]

(B) Explain input and output characteristics of CE configuration. [5]

OR

(A) Explain working as amplification device of transistor. [5]
(B) Describe in detail: Phototransistor. [5]

Section - II

Q-4. (All compulsory)

- (A)(1) Why SiO_2 layer present in MOSFET (2) Pinch off condition (3) Define:CMOS
(4) Justify FET is voltage controlled device (5) what is CRO? [5]
- (B) Comparison between BJT and MOSFET. [5]
- (C) Explain Construction, Operation and both characteristics of N channel Depletion type MOSFET. [5]

OR

- (C) Explain Construction, Operation and both characteristics of P channel JFET. [5]

Q-5. Answer the following question.

- (A) Explain Inverting and non inverting Op Amp in detail. [5]
(B) Draw and explain block diagram of 555 Timer IC. [5]

OR

- (A) Explain block diagram of Digital Storage Oscilloscope. [5]
(B) Comparison of Enhancement and Depletion type MOSFET [5]

Q-6. Answer the following question.

- (A) What is LVDT? Explain principle and operation of LVDT. Give advantage and application of LVDT. [5]
(B) Draw block diagram of DMM. State difference between analogue and DMM. [5]

OR

- (A) Write short note on capacitive transducer and inductive transducer. [5]
(B) What is voltage regulator? Explain three terminal fixed voltage regulators. [5]

----- All the Best -----

KADI SARVA VISHWAVIDYALAYA
B.E.SEMESTER 3RD EXAMINATION NOVEMBER-2014

SUBJECT CODE: CE/IT 302

SUBJECT NAME : Linear Electronics

DATE: 13/11/2014 TIME: 10.30 AM To 01.30 PM TOTAL MARKS: 70

Instructions:

1. Answer Each Section in Separate Answer sheet.
2. Use of Scientific Calculator is permitted.
3. All questions are compulsory.
4. Indicate **clearly**, the options you attempted along with its respective question number.
5. Use the last page of supplementary for rough work.

Section -1

- Q-1 A. Explain the difference between conductors, semi-conductors and insulators with energy band diagram. 5
- B. Compare CE, CB and CC configuration of transistors. 5
- C. Explain working of full wave rectifier with necessary waveforms. 5
- OR
- C. Explain clamping and clipping circuit of diode with necessary diagram. 5
- Q-2 A. Explain transition and diffusion capacitance. 5
- OR
- A. Explain requirement of filter. Explain simple capacitor and inductor filter. 5
- B. Explain zener diode characteristics and its operation. 5
- OR
- B. Derive the average D.C. current and ripple factor for half wave rectifier with circuit diagram and wave form. 5
- Q-3 A. Explain Common-Base configuration with input-output characteristics. 5
- OR
- A. Explain Common-Emitter configuration with input-output characteristics. 5
- B. Explain operation of transistor as an amplifier with example. 5
- OR
- B. Determine emitter current I_E , collector current I_C for a transistor with $\alpha_{dc} = 0.97$ and collector to base leakage current $10\mu A$. Base current is $50\mu A$. 5

Section -2

- Q-4 A. Explain construction and working of JFET 5
B. Define the JFET parameters and derive relation between them. 5
C. Explain construction and working of MOSFET. 5
OR
C. Difference between MOSFET and JFET. 5
- Q-5 A. Explain working of three terminal regulators like 7805, 7905, 7812 and 7912. 5
OR
A. Explain op-amp as inverting and non-inverting amplifier. 5
B. Explain Hartley and Colpitt's oscillators. 5
OR
B. Draw and explain block diagram of IC555. 5
- Q-6 A. Draw and explain block diagram of C.R.O. 5
OR
A. Draw and explain block diagram of D.S.O. 5
B. Explain LVDT in brief. 5
OR
B. Explain capacitive and inductive transducer. 5

KADI SARVA VISHWAVIDYALAYA
B.E.SEMESTER 3RD EXAMINATION APRIL-2015

SUBJECT CODE: CE/IT 302

SUBJECT NAME : Linear Electronics

DATE: 13/04/2015

TIME: 10.30 AM To 01.30 PM TOTAL MARKS: 70

Instructions:

1. Answer Each Section in Separate Answer sheet.
 2. Use of Scientific Calculator is permitted.
 3. All questions are compulsory.
 4. Indicate **clearly**, the options you attempted along with its respective question number.
 5. Use the last page of supplementary for rough work.
-

Section -1

Q-1 A. Compare CE, CB and CC configuration of transistors. 5

B. Explain clamping and clipping circuit of diode with necessary diagram 5

C. Derive the average D.C. current and ripple factor for full wave rectifier with circuit diagram and wave form.. 5

OR

C. Explain requirement of filter. Explain simple capacitor and inductor filter. 5

Q-2 A. Explain in detail the energy band diagram of insulator, semiconductor and conductor 5

OR

A. Explain transition and diffusion capacitance.. 5

B. Explain Common-Base configuration with input-output characteristics. 5

OR

B. Explain working of Half wave rectifier with necessary waveforms. 5

Q-3 A. Explain working of phototransistor with application. 5

OR

A. Explain Common-Emitter configuration with input-output characteristics. 5

B. Explain operation of transistor as an amplifier with example. 5

OR

B. Determine emitter current I_E , collector current I_C for a transistor with $\alpha_{dc} = 0.99$ and collector to base leakage current $15\mu A$. Base current is $60\mu A$. 5

Section -2

- Q-4 A. Explain construction and working of n-channel JFET 5
B. Define the JFET parameters and derive relation between them. 5
C. Explain construction and working of p-channel MOSFET. 5
OR
C. Difference between depletion MOSFET and enhancement MOSFET. 5
- Q-5 A. Explain working of three terminal regulators like 7805, 7905, 7812 and 7912. 5
OR
A. Explain op-amp as inverting and non-inverting amplifier. 5
B. Explain RC phase shift oscillators. 5
OR
B. Draw and explain block diagram of IC555. 5
- Q-6 A. Draw and explain block diagram of digital multimeter. 5
OR
A. Draw and explain block diagram of D.S.O. 5
B. Explain Temperature transducer in brief. 5
OR
B. Explain LVDT in brief. 5