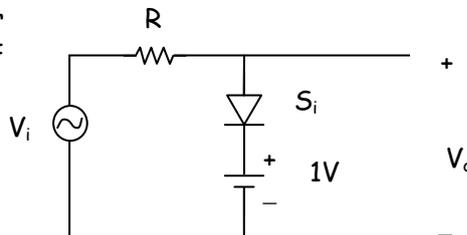


- Instructions :** (1) All questions are compulsory.
(2) Illustrate your answers with neat sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Assume suitable data, if necessary.
(5) Preferably, write the answers in sequential order.

1. Attempt any **FIVE** of the following : [10]
- (a) Draw the symbols for (i) LED (ii) Photodiode
 - (b) State any two application of MOSFET
 - (c) Why CE configuration is preferred for amplifier.
 - (d) Draw the symbols of n-channel and p-channel JFET.
 - (e) State any two applications of LED
 - (f) Define TUF for a rectifier and state its value for half wave rectifier and full wave rectifier.

2. Attempt any **THREE** of the following : [12]
- (a) Draw and explain zener diode as voltage regulator
 - (b) What is need of biasing for BJT ? Draw the voltage divider bias Ckt for BJT ?
 - (c) Compare avalanche breakdown with zener breakdown.
 - (d) Explain concept of DC Load Line and Q-point in BJT.

3. Attempt any **THREE** of the following : [12]
- (a) Draw experimental set-up to obtain Input and Output characteristics of CE configuration.
 - (b) Draw the input-output waveform for following circuit. Explain the working of circuit (Assume input to be sinusoidal)



- (c) A JFET has drain current of 3.5 mA, If $I_{DSS} = 10 \text{ mA}$, $V_{GS}(\text{off}) = -4 \text{ V}$. Find the value of (i) V_{GS} (ii) g_m (Transconductance)
 - (d) Sketch the block diagram of regulated DC power supply. Explain O/P waveform of each block.
4. Attempt any **THREE** of the following : [12]
- (a) Sketch π -filter with full-wave bridge rectifier and state advantages of π -filter.
 - (b) Sketch fixed bias and base bias with emitter feedback circuit.
 - (c) Explain thermal runaway in BJT.
 - (d) Draw the self biasing circuit for JFET and explain why gate current is zero in JFET.
 - (e) With an example explain Clamper Circuit.
5. Attempt any **TWO** of the following : [12]
- (a) Sketch structure of E-type MOSFET. Explain how channel is enhanced ?
 - (b) Define the following parameters of rectifier
 - (i) ripple factor
 - (ii) efficiency
 - (iii) P. I. V
 - (c) Draw structure and characteristics of photodiode. Also state its applications.

6. Attempt any **TWO** of the following :

[12]

- (a) Draw experimental set-up to obtain V-I characteristics of P – V junction diode.
Draw I – V characteristics for the same and mark important levels.
- (b) Compare BJT and JFET (any 6 points)
- (c) Sketch the energy band diagram for insulators, conductors and semiconductors.

□ □ □ □ □

Paper Discussion Schedule for: F.Y. Diploma Sem. -II

Date	Day	Timing	Centre
8 April 2018	Sunday	9 a.m. to 11 a.m.	Dadar ,Borivali, Nerul and Thane
8 April 2018	Sunday	3 p.m.to 5 p.m.	Kalyan