

- Q.27 Explain the MOSFET with construction, operation and characteristics.

Q.28 What is the effect of temperature on conductivity of Intrinsic semi-conductor?

Q.29 Explain the following terms:-
a) Zener Breakdown
b) Avalanche Breakdown

Q.30 What is Clipping and Clamping circuit? Explain with a labelled diagram.

Q.31 What is operating point? How it is selected and what is the need of stabilization of operating point?

Q.32 Explain the phenomenon of current flow in a P-type semi-conductor with diagram.

Q.33 Discuss the behaviour of a P-N junction under forward and reverse biased condition.

Q.34 Explain the application of Diode as a Full Wave Centre Tapped Rectifier with circuit diagram & O/P wave form.

Q.35 Define Thermal Generation, Recombination, Acceptor impurity, Donor Impurity, Potential Barrier.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

- Q.36 Differentiate between BJT, JFET and MOSFET.

Q.37 Classify the materials in to Conductors, Semiconductors & Insulators on the basis of energy levels & explain with the help of energy level diagrams.

Q.38 a) What is a half rectifier, explain with diagram.
b) Write short note on
 1. Varactor Diode 2. Tunnel Diode

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**2nd Sem / Branch : Comp, ECE, IT, I & control,
Mechatronics, Med, Eltx, Eltx & Instr., Power Eltx, EEE**

Subject:- Basic Electronics / Analog Eltx.

Time : 3Hrs. M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

- Q.1 A semiconductor has a

 - a) Negative temperature co-efficient of resistance
 - b) Positive temperature co-efficient of resistance
 - c) Constant temperature co-efficient of resistance
 - d) None of these

Q.2 A Zener diode is operated in

 - a) Breakdown Region
 - b) Forward Characteristic Region
 - c) Both a & b
 - d) None of these

Q.3 While operating as a switch the transistor is operated in

 - a) Cut-off state
 - b) Saturation state
 - c) Either in cut-off or saturation state
 - d) All of these

Q.4 A FET has three terminal namely : source, drain and

 - a) Grid
 - b) Substrate
 - c) Ground
 - d) Gate

- Q.5 The potential divider biasing is used in amplifiers to
- Limit the input AC signal going to the base
 - Reduce the DC base current
 - Reduce the cost of the circuit by limiting the number of resistors.
 - Make the operating point almost independent of Beta
- Q.6 A diode which has Zero breakdown voltage is known as
- Zener diode
 - Schottky diode
 - Backward diode
 - Tunnel diode
- Q.7 The emitter of a transistor is doped
- Heavily
 - Lightly
 - Moderately
 - None of these
- Q.8 The maximum efficiency of a full wave rectifier is
- 406%
 - 100%
 - 81.2%
 - 85.6%
- Q.9 For a P-N junction made of germanium, the maximum value of potential barrier is:
- 0.3 Volts
 - 0.7 Volts
 - 1.3 Volts
 - 1.7 Volts
- Q.10 In a p-type semiconductor the minority carriers are:
- Holes
 - Electrons
 - None
 - Both a & b

SECTION-B

- Note:** Objective type questions. All questions are compulsory. (10x1=10)
- Q.11 Draw the atomic structure of an atom of Germanium.
- Q.12 What do you mean by Peak Inverse Voltage?

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- Q.13 Transistor in CC configuration is generally used for _____.
- Q.14 The point where D.C. load line intersects the given base current curve is called _____.
- Q.15 A single stage amplifier contains _____ transistor.
- Q.16 Draw the symbol of FET.
- Q.17 Sometimes a MOSFET is also called IGFET. (True/False)
- Q.18 In a n-channel FET, the current conduction is due to _____ charge carriers.
- Q.19 What is Doping?
- Q.20 What is Diode?

SECTION-C

- Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)
- Q.21 Explain the action of a Zener Diode as a Voltage Regulator.
- Q.22 What is an Extrinsic semiconductor & how it is classified?
- Q.23 Explain the construction, operation & characteristics of a N-channel FET.
- Q.24 What is transistor? Explain the function of its terminals along with operation of a junction transistor.
- Q.25 What do you understand by Transistor Biasing? Name & Explain any two methods of transistor Biasing.
- Q.26 Draw the circuit diagram of a single-stage transistor amplifier state the function of each component used in this circuit.

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