Roll No. ....

3rd Sem / Electrical Engg, GE, Power Station Engg.
Elect & Eltx. Engg, Fire Tech & Safety
Subject:- Electronics-I / Basic Electronics

Time : 3Hrs.   M.M. : 100

SECTION-A

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

Q.1   A practical current source can also be represented as_____
  a)   a resistance in parallel with an ideal voltage source
  b)   a resistance in parallel with an ideal current source
  c)   a resistance in series with an ideal current source
  d)   none of the mentioned

Q.2   Which of the following is true about an ideal voltage source?
  a)   zero resistance   b)   small emf
  c)   large emf   d)   infinite resistance

Q.3   How is the resistance of semiconductor classified?
  a)   High resistance
  b)   Positive temperature co-efficient
  c)   Negative temperature co-efficient
  d)   Low resistance

Q.4   What are the charge carriers in semicondutors?
  a)   Electrons and holes   b)   Electrons
  c)   Holes   d)   Charges

Q.5   What is the semiconductor diode used as?
  a)   Oscillator   b)   Amplifier
  c)   Rectifier   d)   Modulator

Q.6   Which region of the transistor is highly doped?
  a)   Emitter
  b)   Base
  c)   Collector
  d)   Both Emitter and Collector

Q.7   The maximum output amplified signal is obtained when the operating point of the transistor is
  a)   near saturation
  b)   in the middle of the active region
  c)   near cutoff region
  d)   any of the above

Q.8   The voltage gain is practically expressed in_____
  a)   db   b)   volts
  c)   as a number   d)   ampere

Q.9   What is trans-conductance?
  a)   Ratio of change in drain current to change in collector current
  b)   Ratio of change in drain current to change in gate to source voltage
  c)   Ratio of change in collector to change in drain current
  d)   Ratio of change in collector current to change in gate to source voltage

Q.10 Comparing the size of BJT and FET, choose the correct statement?
a) BJT is larger than the FET
b) BJT is smaller then the FET
c) Both are of same size
d) Depends on application

SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

Q.11 Name any one active component.
Q.12 What are intrinsic semiconductors.
Q.13 Write any one pantavelent impurity.
Q.14 Define PIV.
Q.15 Draw the symbol of NPN transistor.
Q.16 What is Quiescent point.
Q.17 What is DC load line.
Q.18 Define multistage transistor Amplifier.
Q.19 Write the full form of FET.
Q.20 What are filters circuits.

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 What are constant current sources? Draw the symbol of practical current source.
Q.22 Show a conversion of practical voltage source in to current source with appropriate circuit.
Q.23 Draw the atomic structure of Phosphorus and Silicon.
Q.24 Explain the effect of temperature on the conductivity of intrinsic and extrinsic semiconductor.

Q.25 Draw the circuit of Half wave rectifier and explain its working with suitable waveforms.
Q.26 Write short note on LED.
Q.27 Explain the concept of AC load line.
Q.28 Discuss the effect of loading in multi stage transistor amplifiers.
Q.29 Explain the concept of input and output impedance.
Q.30 What is the need of Filter circuits. Explain PIE filter circuits.
Q.31 Compare BJT and FET.
Q.32 Explain the mechanism of current flow in PNP Transistor.
Q.33 Draw the crystalline structure of silicon at room temperature.
Q.34 Elaborate the concept of h-parameters.
Q.35 Explain the construction and working principle of JFET.

SECTION-D

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

Q.36 What are the different types of biasing circuit and what is its need. Explain voltage divider types of biasing circuit.
Q.37 Draw the V/I characteristics of semiconductor diode and explain it in detail with circuit diagram.
Q.38 Draw the circuit of 2-stage RC coupled transistor amplifier and explain it in details.