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**2nd Sem. / ECE, Automation & Robotics  
Subject : Electronics Devices and Circuits-I**

Time : 3 Hrs.

M.M. : 60

**SECTION-A**

**Note:** Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 The number of diodes required in a bridge rectifier is \_\_\_\_\_

- a) two
- b) three
- c) four
- d) one

Q.2 Addition of pentavalent impurity to a semiconductor creates many \_\_\_\_\_

- a) Free electrons
- b) Holes
- c) Valence Charged
- d) Bound Electrons

Q.3 The Operating point is also called the \_\_\_\_\_

- a) Cut off point
- b) Quiescent point
- c) Saturation point
- d) None of the above

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Q.4 Minority carries in P type semiconductor is \_\_\_\_\_

- a) Holes
- b) Electrons
- c) Both
- d) None

Q.5 The circuit that provides the best stabilization of operating point is \_\_\_\_\_

- a) Base resistor bias
- b) Collector feedback bias
- c) Potential divider bias
- d) None of the above

Q.6 FET is a \_\_\_\_\_ device

- a) Tripolar
- b) Bipolar
- c) Unipolar
- d) None

**SECTION-B**

**Note:** Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Define static resistance

Q.8 What is potential barrier.

Q.9 Expand MOSFET

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Q.10 What is insulator?

Q.11 What is doping

Q.12 What are majority carriers in P type semiconductor.

### SECTION-C

**Note:** Short answer type questions. Attempt any eight questions out of ten questions.  $(8 \times 4 = 32)$

Q.13 Explain energy level diagram of conductors, insulators and semiconductors.

Q.14 Explain the effect of temperature on conductivity of Intrinsic semiconductor

Q.15 Explain avalanche breakdown.

Q.16 Explain the concept of DC Load line

Q.17 Explain the forward and reverse biasing PN Junction in brief.

Q.18 What is operating point. What is need of stabilization of operating point.

Q.19 What are various clipping circuits, Explain in brief.

Q.20 What is relation between alpha, beta and gamma in transistor.

Q.21 Explain the operation of MOSFET in depletion mode.

Q.22 Write a note on shunt capacitor filter.

### SECTION-D

**Note:** Long answer type questions. Attempt any two questions out of three questions.  $(2 \times 8 = 16)$

Q.23 Compare JFET, MOSFET & BJT

Q.24 Compare CB, CC and CE Configuration.

Q.25 Explain voltage divider biasing circuit.