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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. (8x4=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.

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- 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. (2x8=16)

- Q.23 Compare JFET, MOSFET & BJT
- Q.24 Compare CB, CC and CE Configuration.
- Q.25 Explain voltage divider biasing circuit.

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