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**2nd Sem / ECE, Automation & Robotics, ECE  
( For Speech and Hearing Impaired)**  
**Subject : Electronic Devices and Circuits - I**

Time : 3 Hrs. M.M. : 60

**SECTION-A**

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

- Q.1 How many valence electrons does a pentavalent impurity have?  
a) 2                          b) 3  
c) 4                          d) 5

- Q.2 At absolute zero, intrinsic semiconductor behave as?  
a) conductor              b) insulator  
c) metal                    d) none

- Q.3 A zener diode is used as a \_\_\_\_\_  
a) rectifier                b) amplifier  
c) regulator                d) none

- Q.4 Efficiency of bridge full wave rectifier is \_\_\_\_\_  
a) 81.2%                    b) 50%  
c) 72%                     d) 65%
- Q.5 Rectifier convert \_\_\_\_\_ into \_\_\_\_\_  
a) AC,AC                    b) AC,DC  
c) DC,AC                    d) DC,DC
- Q.6 FET stands for \_\_\_\_\_  
a) field effect transformer  
b) Force effect transistor  
c) field effect transistor  
d) none

**SECTION-B**

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

- Q.7 Atomic number of Si atom is \_\_\_\_\_
- Q.8 In P type semiconductor \_\_\_\_\_ is the majority charge carriers.
- Q.9 PN junction diode is a unidirectional device.  
(True/False)
- Q.10 Draw the symbol of Zener diode.

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(2)

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Q.11 A transistor consists of three regions: base, emitter, and collector. (True/False)

Q.12 Write the full form of BJT.

### SECTION-C

**Note:** Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Draw the atomic structure of Silicon with its electronic configuration.

Q.14 Explain extrinsic semiconductor with its types.

Q.15 What is the effect of temperature on the conductivity of intrinsic semiconductor?

Q.16 What is drift current and diffusion current?

Q.17 Explain the working of half wave rectifier.

Q.18 List the applications of Zener diode.

Q.19 What is filter? Name the types of filter.

Q.20 Explain the working of NPN transistor with diagram.

Q.21 Write a short note on CB configuration of transistor.

Q.22 Explain the working of N channel FET in detail.

### SECTION-D

**Note:** Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Differentiate between conductor, semiconductor, and insulator based on energy band diagram.

Q.24 With a neat diagram explain the working of a full wave bridge rectifier.

Q.25 Compare BJT, JFET and MOSFET