Seat No: _____ **Enrollment No: _____**

PARUL UNIVERSITY

FACULTY OF ENGINEERING & TECHNOLOGY

B.Tech. Winter - 23 Examination

Semester: 1 **Date: 25/01/2023**
Subject Code: 303107151 **Time: 2:00 pm to 4:30 pm**
Subject Name: Basic Electronics **Total Marks: 60**

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 **Objective Type Questions** - (Fill in the blanks, one word answer, MCQ-not more than Five in case of MCQ) (All are compulsory) (Each of one mark) **(15)**

1. SMPS stands for_____.
2. Voltage doubler gives _____o/p Voltage.
3. IC 7912 output voltage is _____.
4._____diode knows as M-S junction diode.
(A) LED (B) P-N Junction (C) Photo diode (D) Schottky Diode
5. Valence electron present in silicon is_____.
a) 3 c) 5
b) 4 d) 6
6. BJT stands for_____.
7. Which of the following is not a necessary component in a clamper circuit?
(a) Diode (c) Resistor
(b) Capacitor (d) Independent DC Supply
8. Pure semiconductor is called extrinsic semiconductor. (True/False)
9. With increase in temperature of a semiconductor its conductivity _____.(Increases/Decreases)
10. In the symbol of BJT transistor, which terminal is shown with arrow
(a) Emitter (c) Collector
(b) Base (d) None of these
11. Rectifier is use to convert DC into AC.(True/ False)
12. A transducer is defined as a device for converting energy from one form to another. (True/ False)
13. Draw the symbol of PNP & NPN transistor.
14. A half-wave rectifier is equivalent to a _____.
a) a clamper circuit c) a clamper circuit with negative bias
b) a clipper circuit d) a clamper circuit with positive bias
15. LED stands for_____.

Q.2 Answer the following questions. (Attempt any three) **(15)**

A) Explain in detail about linear fixed voltage regulator ICs.
B) Explain various biasing techniques for transistors and their applications
C) Explain the difference between sensors and transducers along with its application.
D) Differentiation of photodiode and LED.

Q.3 A) Briefly explain formation of depletion region in PN Junction Diode. Also explain the Forward bias and reverse bias operation of PN junction diode with V-I characteristics. **(07)**

B) Describe the Clipper & clamper circuit along with its input and output waveform. **(08)**

OR

B) Explain single stage RC Coupled CE amplifier with its input and output wave form. **(08)**

Q.4 A) Describe the block diagram and circuit diagram of DC regulated power supply also draw the input and output waveform for each block. **(07)**

OR

A) Explain the DC load line and Q-point as well as the voltage divider bias circuit. **(07)**

B) Differentiate Between Half Wave Rectifiers, Center Tap Rectifier & Bridge Wave Rectifier. **(08)**