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

PARUL UNIVERSITY

FACULTY OF ENGINEERING & TECHNOLOGY

B.Tech. Winter 2022-23 Examination

Semester: 3 **Date: 06/10/2022**
Subject Code: 203107201 **Times: 2.00 pm to 4.30 pm**
Subject Name: Electronic Devices **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. MOSFET stands for_____.
2. Barrier potential of silicon _____ and germanium _____.
3. The alternative name of Chip IC is Wafer. True/False
4. Components which are not producing gain are called _____.
5. FET stands for_____.
6. When negative voltage feedback is applied to an amplifier, its voltage gain _____.
a) Is increased b) Is reduced
c) Remains the same d) None of the above
7. In an LC transistor oscillator, the active device is _____.
a) LC tank circuit b) Biasing circuit
c) Transistor d) None of the above
8. An oscillator converts _____.
9. Full form of LED _____.
10. MOSFET works on _____ principle.
11. Which among the below mentioned devices acts as a driver in CMOS Inverter Circuit?
a) PMOS b) NMOS
c) Both a and b d) None of the above
12. Formula for voltage gain _____.
13. Full form of CMOS _____.
14. Photodiode works in _____biasing.
15. In CMOS process oxidation process is carried out using _____

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

A) Explain difference between conductor, semiconductor and insulator along with its Energy band diagram.
B) Explain Difference between 1)MOSFET and CMOS
2)PMOS and NMOS
C) Explain the following terms.
i) Diffusion current
ii) Drift current
iii) Mobility
iv) Resistivity
v) Stability
D) Explain steps for Twin tub CMOS fabrication process.

Q.3 **A)** Explain multistage amplifiers with its input and output wave form along with its frequency responses. **(07)**

B) What do you mean by Oscillator? Explain the Barkhausen Criterion along with advantages of oscillator circuit. **(08)**

OR

B) What do you mean by Amplifier? Explain different class of it and explain any one of them. **(08)**

Q.4 **A)** What do you mean by feedback topologies? Explain different types of it. **(07)**

OR

A) Explain Hartley oscillator and a Colpitts oscillator with its advantages. **(07)**
B) Explain in detail about LED, photodiode and solar cell with its pros and cons. **(08)**