Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - SEMESTER–III • EXAMINATION – SUMMER • 2014

Subject Code: X 30901 **Date: 18-06-2014**

Subject Name: Basic Electronics

Time: 02:30 pm – 05:00 pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Explain (1) Charged Particle (2) Field Intensity (3) Potential Energy.	**07**
	(b)	State and explain electrical properties of Ge and Si.	**07**
Q.2	**(a)**	Explain the energy band theory of crystals, insulators, semiconductors and metals with necessary diagrams.	**07**
	(b)	What is the stability factor? Derive its equation against the change in I_{CO}, V_{BE}, and β.	**07**
		OR	
	(b)	Explain "open–circuited p-n junction" and "p-n junction as a rectifier" with necessary diagrams.	**07**
Q.3	**(a)**	Explain h-parameter for CE configurations.	**07**
	(b)	Write technical note on tunnel diode.	**07**
		OR	
Q.3	**(a)**	Explain push-pull amplifier with necessary diagrams.	**07**
	(b)	Write technical note on photovoltaic effect.	**07**
Q.4	**(a)**	Explain piecewise linear diode model.	**07**
	(b)	Discuss "clipping at two independent levels" with suitable circuit diagram and their wave forms.	**07**
		OR	
Q.4	**(a)**	Explain transformer coupled audio power amplifier in detail.	**07**
	(b)	What is the necessity of filter? Explain capacitor filter in detail.	**07**
Q.5	**(a)**	Explain the transistor as an amplifier with necessary diagrams.	**07**
	(b)	Give comparison of CB, CE and CC configuration of transistor amplifier.	**07**
		OR	
Q.5	**(a)**	What is load line analysis for transistor amplifier? In which condition the position of operating point is shifting?	**07**
	(b)	Explain what is pinch off voltage? Discuss V-I characteristic of FET.	**07**

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