Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER– VI EXAMINATION – SUMMER 2026

Subject Code: 3162419 Date:01-06-2026

Subject Name: Principles of Power Supply

Time:10:30 AM TO 01:00 PM Total Marks:70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

			MARKS
Q.1	**(a)**	Explain importance of Power Supply in modern electronics applications.	**03**
	(b)	State and explain performance parameters for DC Power. Supply.	**04**
	(c)	Classify filters and explain any one in detail.	**07**
Q.2	**(a)**	Draw and explain basic block diagram DC power supply.	**03**
	(b)	Explain Op-amp based regulator circuit.	**04**
	(c)	Describe general steps for Power supply design.	**07**
		OR	
	(c)	Explain regulated power supply using LM 723.	**07**
Q.3	**(a)**	Explain working principle of Switched Mode Power Supply.	**03**
	(b)	Write short note on LM 317.	**04**
	(c)	Explain design of simple regulated power supply based on any suitable IC.	**07**
		OR	
Q.3	**(a)**	What is the major difference between linear power supply and switch mode power supply?	**03**
	(b)	Explain multiphase buck converter.	**04**
	(c)	Explain any one IC for SMPS control.	**07**
Q.4	**(a)**	Discuss techniques to improve efficiency in SMPS.	**03**
	(b)	Explain buck converter.	**04**
	(c)	List out various battery charging method and explain anyone.	**07**
		OR	
Q.4	**(a)**	Explain importance of PCB design for SMPS.	**03**
	(b)	Give the comparison between Lead Acid battery and Li-ion battery.	**04**
	(c)	Explain constant current constant voltage charging in detail.	**07**
Q.5	**(a)**	Discuss losses and stress in SMPS.	**03**
	(b)	Explain any one control method of SMPS.	**04**
	(c)	Draw and explain block diagram of online and off-line UPS.	**07**
		OR	
Q.5	**(a)**	Draw and explain block diagram of UPS.	**03**
	(b)	Explain battery-based AC power supply.	**04**
	(c)	Explain power supply for portable electronics equipment.	**07**

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