24 NOV 2025 SE ELECTRICAL (SEM-III) C SCHEME AE QP CODE: 10093157

[Time: 3 Hours] **[Total Marks: 80]**

Instructions:

1. **Question No: 1 is compulsory.**
2. **Answer any three from the remaining five questions.**

1			**(5 x 4)**
	a)	Explain the working of full wave bridge rectifier circuit with neat waveforms.	
	b)	Interpret the V-I characteristics of MOSFET.	
	c)	Draw and explain the frequency response of BJT amplifiers.	
	d)	Illustrate the working of Schottky diode with its applications.	
2	a)	Illustrate with a neat figure, derive the expression of output voltage of subtractor circuit using op-amp.	**(10)**
	b)	Draw the hybrid equivalent model of voltage divider bias CE amplifier and derive the expression for voltage gain.	**(10)**
3	a)	Illustrate any three biasing circuits employed in MOSFET amplifiers.	**(10)**
	b)	Explain the working of Astable multivibrator using IC555.	**(10)**
4	a)	Illustrate the procedure to find I_{CQ} and V_{CEQ} for an emitter bias BJT Amplifier with an example.	**(10)**
	b)	Illustrate the working MOSFET CS amplifier. Derive the expression of voltage gain.	**(10)**
5	a)	Explain the construction and working of optoisolators.	**(10)**
	b)	Explain the working of op-amp as instrumentation amplifier.	**(10)**
6		Write short notes:	**(20)**
	1)	LED and Zener diodes.	
	2)	Inverting and Non-inverting amplifier using op-amp.	

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