List of Schemes

	Schemes in Chapter 2	Page no
Scheme 2.1	Schematic representation of POP-Am synthesis from BzCl	40
	(1,3,5-benzenetricarbonyl trichloride) and PD (p-	
	phenylenediamine)	
Scheme 2.2	Selective oxidation of benzyl alcohol to benzaldehyde using	46
	metal free catalyst POP-Am	
Scheme 2.3	Oxidation of benzyl alcohols does not proceed in absence of	47
	POP-Am	
Scheme 2.4	Oxidation of benzyl alcohols to the corresponding carbonyl	48
	compounds freezes while performing the reactions in presence	
	of free radical scavenger (TEMPO) thereby indicating the	
	formation of free radicals during the reaction	
	process	
Scheme 2.5	Proposed free radical mechanism for the selective oxidation of	53
	benzyl alcohols to benzaldehydes using POP-Am as	
	organocatalyst	
	Schemes in Chapter 3	
Scheme 3.1	Schematic representation of POP-Am1 synthesis from 2,4,6-	66
	tris(4-aminophenyl)pyridine (TAPPy) and 1,3,5-	
	benzenetricarbonyl trichloride (BzCl)	
Scheme 3.2	Synthetic representation of Cu@POP-Am1 from POP-Am1	71
Scheme 3.3	Plausible mechanistic pathway towards reduction of 4-	79
	nitrophenol to 4-aminophenol	
	Schemes in Chapter 4	
Scheme 4.1	Schematic representation of synthesis of microporous POP-	92
	Am2 from TAPT	
Scheme 4.2	Schematic representation of styrene oxidation using POP-	97
	Am2 afforded benzaldehyde in major selectivity by C=C bond	

	cleavage. Epoxide and terminal aldehyde are other by-	
	products in minor selectivity	
Scheme 4.3	Catalytic oxidation of styrene derivatives does not proceed	99
	with H ₂ O ₂ as oxidant in lieu of TBHP	
Scheme 4.4	Oxidation of substituted styrene freezes while performing the	100
	reaction in presence of a free radical scavenger (TEMPO)	
	evidencing the formation of free radicals during	
	Schemes in Chapter 5	
Scheme 5.1	(a) Synthetic representation of Cu immobilized POP-Am2,	115
	Cu@POP-Am2	
Scheme 5.2	Catalytic oxidation of benzylic C-H in toluene using	119
	Cu@POP-Am2 affording benzaldehyde with major	
	selectivity	
Scheme 5.3	Reaction quenching in catalytic oxidation of benzylic C-H in	122
	toluene using Cu@POP-Am2 in presence of TEMPO, a free	
	radical scavenger	
Scheme 5.4	Proposed mechanistic pathway of oxidation of toluene	124
	initiated via nucleophilic C–H activation by Cu@POP-Am2	