

Report

Offline-3 on Local Search



Course No: CSE-318

Course Title: Artificial Intelligence Sessional

Submitted By:

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Section: A2

Exponential Penalty

Benchmark Data	Known Best Solution		Scheme-1 : Largest Degree + Kempe + Pairswap			
			Time Slots	Penalty		
	Time Slots	Penalty		After Largest Degree	After Kempe	After Pair Swap
CARF92	32	3.74	32	10.61	5.47	5.44
CARS91	35	4.42	35	11.49	7.11	7.04
KFUS93	20	12.96	20	46.51	17.62	17.26
TRES92	23	7.75	23	15.89	10.18	10.06
YORF83	21	34.84	23	64.68	38.82	38.25

Benchmark Data	Known Best Solution		Scheme-2 : Saturation Degree + Kempe + Pairswap			
			Time Slots	Penalty		
	Time Slots	Penalty		After Largest Degree	After Kempe	After Pair Swap
CARF92	32	3.74	32	9.68	6.19	6.15
CARS91	35	4.42	31*	12.45	8.23	8.15
KFUS93	20	12.96	19*	46.69	19.69	19.20
TRES92	23	7.75	23	15.91	9.98	9.92
YORF83	21	34.84	20*	61.65	46.26	46.20

** Best time slot performance **

Benchmark Data	Known Best Solution		Scheme-3 : Largest Enrollment + Kempe + Pairswap			
			Time Slots	Penalty		
	Time Slots	Penalty		After Largest Degree	After Kempe	After Pair Swap
CARF92	32	3.74	35	10.69	5.06	5.03
CARS91	35	4.42	36	13.78	6.30	6.25
KFUS93	20	12.96	21	54.51	16.39	15.75
TRES92	23	7.75	22*	16.32	11.07	10.99
YORF83	21	34.84	25	63.27	33.43	33.03

Benchmark Data	Known Best Solution		Scheme-4 : Random Ordering + Kempe + Pairswap			
			Time Slots	Penalty		
	Time Slots	Penalty		After Largest Degree	After Kempe	After Pair Swap
CARF92	32	3.74	43	7.93	3.70	3.60*
CARS91	35	4.42	49	9.34	4.44	4.33*
KFUS93	20	12.96	25	34.64	12.82	12.25*
TRES92	23	7.75	28	13.01	7.75	7.63
YORF83	21	34.84	29	48.93	27.28	26.93*

**** Best penalty performance ****

Linear Penalty

Benchmark Data	Known Best Solution		Scheme-5 : Saturation Degree + Kempe + Pairswap			
			Time Slots	Penalty		
	Time Slots	Penalty		After Largest Degree	After Kempe	After Pair Swap
CARF92	32	3.74	30*	6.28	3.93	3.89
CARS91	35	4.42	31*	8.05	5.15	5.12
KFUS93	20	12.96	19*	28.98	13.16	13.10
TRES92	23	7.75	23	10.13	6.60	6.56*
YORF83	21	34.84	20*	38.92	29.88	29.87

N.B:

- **Kempe Chain Interchange and Pair Swap Operation data are calculated running 2000 iterations.**
- **Best performances are marked with asterisk(*)**.