GROUPS	METHOD	ENT	MI	Q_{abf}	SSIM
G1	QPSO+PCNN	6.133	0.845	0.622	0.637
	MOPSO+PCNN	6.137	0.849	0.623	0.642
	PSO+PCNN	6.304	0.858	0.625	0.644
	MFOA+PCNN	6.356	0.868	0.626	0.647
	WOA+PCNN	6.253	0.847	0.597	0.624
	PSO-TV+PCNN	6.799	0.878	0.643	0.658
	PSO-DE+PCNN	6.442	0.867	0.647	0.682
	DE+PCNN	7.035	0.889	0.649	0.689
	Proposed	**7.266**	**0.898**	**0.668**	**0.714**
G2	QPSO+PCNN	6.017	0.764	0.555	0.558
	MOPSO+PCNN	6.037	0.765	0.556	0.562
	PSO+PCNN	6.315	0.767	0.558	0.567
	MFOA+PCNN	6.357	0.767	0.559	0.570
	WOA+PCNN	5.168	0.733	0.484	0.535
	PSO-TV+PCNN	6.474	0.776	0.573	0.589
	PSO-DE+PCNN	6.053	0.768	0.579	0.597
	DE+PCNN	6.433	0.778	0.578	0.632
	Proposed	**6.467**	**0.780**	**0.587**	**0.662**
G3	QPSO+PCNN	6.135	0.769	0.559	0.567
	MOPSO+PCNN	6.164	0.773	0.562	0.569
	PSO+PCNN	6.337	0.775	0.565	0.570
	MFOA+PCNN	6.377	0.777	0.566	0.571
	WOA+PCNN	6.023	0.775	0.489	0.538
	PSO-TV+PCNN	6.496	0.759	0.559	0.599
	PSO-DE+PCNN	6.112	0.763	0.579	0.591
	DE+PCNN	6.475	0.766	0.579	0.605
	Proposed	**6.682**	**0.789**	**0.592**	**0.670**
G4	QPSO+PCNN	6.129	0.776	0.572	0.574
	MOPSO+PCNN	6.154	0.774	0.576	0.574
	PSO+PCNN	6.315	0.774	0.557	0.575
	MFOA+PCNN	6.332	0.768	0.581	0.576
	WOA+PCNN	6.006	0.774	0.559	0.547
	PSO-TV+PCNN	6.498	0.773	0.557	0.589
	PSO-DE+PCNN	6.186	0.767	0.583	0.596
	DE+PCNN	6.469	0.766	0.585	0.645
	Proposed	**6.579**	**0.799**	**0.622**	**0.677**
G5	QPSO+PCNN	6.138	0.779	0.576	0.586
	MOPSO+PCNN	6.177	0.776	0.576	0.587
	PSO+PCNN	6.292	0.780	0.579	0.590
	MFOA+PCNN	6.451	0.778	0.582	0.595
	WOA+PCNN	6.113	0.773	0.544	0.596
	PSO-TV+PCNN	6.602	0.759	0.585	0.597
	PSO-DE+PCNN	6.222	0.763	0.584	0.597
	DE+PCNN	6.477	0.766	0.582	0.624
	Proposed	**6.584**	**0.821**	**0.637**	**0.687**
G6	QPSO+PCNN	6.214	0.776	0.572	0.576
	MOPSO+PCNN	6.236	0.772	0.579	0.578
	PSO+PCNN	6.268	0.774	0.578	0.579
	MFOA+PCNN	6.357	0.777	0.579	0.583
	WOA+PCNN	6.177	0.764	0.554	0.575
	PSO-TV+PCNN	6.576	0.772	0.578	0.587
	PSO-DE+PCNN	6.129	0.774	0.577	0.589
	DE+PCNN	6.483	0.774	0.578	0.592
	Proposed	**6.577**	**0.805**	**0.622**	**0.680**
G7	QPSO+PCNN	6.216	0.777	0.574	0.578
	MOPSO+PCNN	6.237	0.778	0.579	0.579
	PSO+PCNN	6.288	0.780	0.580	0.578
	MFOA+PCNN	6.358	0.804	0.578	0.579
	WOA+PCNN	6.395	0.778	0.550	0.536
	PSO-TV+PCNN	6.476	0.817	0.582	0.598
	PSO-DE+PCNN	6.199	0.828	0.583	0.587
	DE+PCNN	6.477	0.839	0.583	0.532
	Proposed	**6.597**	**0.810**	**0.630**	**0.681**

Table 3b: Objective Assessment on Various Approaches for Fig. 3 for G8 – G14

GROUPS	METHOD	ENT	MI	Q_{abf}	SSIM
G8	QPSO+PCNN	6.103	0.785	0.583	0.598
	MOPSO+PCNN	6.128	0.788	0.584	0.623
	PSO+PCNN	6.275	0.792	0.584	0.627
	MFOA+PCNN	6.345	0.794	0.586	0.633
	WOA+PCNN	6.181	0.787	0.552	0.587
	PSO-TV+PCNN	6.453	0.794	0.591	0.645
	PSO-DE+PCNN	6.486	0.796	0.593	0.656
	DE+PCNN	6.568	0.798	0.596	0.659
	Proposed	**6.584**	**0.830**	**0.642**	**0.694**
G9	QPSO+PCNN	6.114	0.789	0.584	0.617
	MOPSO+PCNN	6.119	0.793	0.585	0.624
	PSO+PCNN	6.236	0.795	0.585	0.628
	MFOA+PCNN	6.356	0.797	0.587	0.632
	WOA+PCNN	6.204	0.791	0.554	0.602
	PSO-TV+PCNN	6.379	0.824	0.593	0.638
	PSO-DE+PCNN	6.431	0.826	0.595	0.645
	DE+PCNN	6.504	0.830	0.597	0.658
	Proposed	**6.614**	**0.837**	**0.649**	**0.698**
G10	QPSO+PCNN	6.106	0.777	0.574	0.579
	MOPSO+PCNN	6.187	0.782	0.577	0.586
	PSO+PCNN	6.277	0.785	0.578	0.592
	MFOA+PCNN	6.348	0.789	0.581	0.597
	WOA+PCNN	6.233	0.780	0.554	0.568
	PSO-TV+PCNN	6.379	0.823	0.583	0.611
	PSO-DE+PCNN	6.406	0.826	0.584	0.624
	DE+PCNN	6.467	0.827	0.584	0.636
	Proposed	**6.603**	**0.814**	**0.631**	**0.681**
G11	QPSO+PCNN	6.225	0.776	0.573	0.576
	MOPSO+PCNN	6.267	0.776	0.574	0.584
	PSO+PCNN	6.355	0.778	0.576	0.587
	MFOA+PCNN	6.390	0.779	0.578	0.589
	WOA+PCNN	6.289	0.776	0.549	0.555
	PSO-TV+PCNN	6.412	0.783	0.582	0.593
	PSO-DE+PCNN	6.447	0.785	0.584	0.597
	DE+PCNN	6.562	0.789	0.586	0.618
	Proposed	**6.647**	**0.809**	**0.628**	**0.679**
G12	QPSO+PCNN	6.230	0.775	0.572	0.576
	MOPSO+PCNN	6.276	0.778	0.573	0.580
	PSO+PCNN	6.315	0.783	0.575	0.585
	MFOA+PCNN	6.370	0.786	0.576	0.592
	WOA+PCNN	6.288	0.779	0.543	0.572
	PSO-TV+PCNN	6.455	0.788	0.578	0.597
	PSO-DE+PCNN	6.507	0.789	0.580	0.619
	DE+PCNN	6.568	0.791	0.582	0.624
	Proposed	**6.676**	**0.798**	**0.622**	**0.680**
G13	QPSO+PCNN	6.164	0.779	0.576	0.585
	MOPSO+PCNN	6.233	0.821	0.577	0.591
	PSO+PCNN	6.279	0.824	0.577	0.597
	MFOA+PCNN	6.358	0.825	0.583	0.605
	WOA+PCNN	6.291	0.817	0.550	0.580
	PSO-TV+PCNN	6.415	0.827	0.586	0.618
	PSO-DE+PCNN	6.487	0.827	0.588	0.627
	DE+PCNN	6.506	0.830	0.589	0.635
	Proposed	**6.635**	**0.830**	**0.636**	**0.685**
G14	QPSO+PCNN	6.151	0.780	0.577	0.590
	MOPSO+PCNN	6.212	0.786	0.582	0.594
	PSO+PCNN	6.257	0.787	0.585	0.599
	MFOA+PCNN	6.336	0.787	0.587	0.615
	WOA+PCNN	6.270	0.784	0.548	0.583
	PSO-TV+PCNN	6.404	0.788	0.590	0.587
	PSO-DE+PCNN	6.465	0.792	0.590	0.594
	DE+PCNN	6.485	0.796	0.593	0.598
	Proposed	**6.596**	**0.834**	**0.640**	**0.692**