Program 1: Write an OpenMp program that computes the value of PI using Monto-Carlo Algorithm.

Threads	Input 4	Input 3	Input 2	Input 1
1	0.08395	0.007466	0.000506	0.000056
2	0.303378	0.020499	0.00191	0.000159
4	0.475851	0.045119	0.003952	0.000601
8	0.560168	0.054209	0.004343	0.000989

Input	T1	T2	T3	T4
1000	0.000056	0.000159	0.000601	0.000989
10000	0.000506	0.00191	0.003952	0.004343
100000	0.007466	0.020499	0.045119	0.054209
1000000	0.08395	0.303378	0.475851	0.560168

Program 2: Write an OpenMP program that computes a simple matrix-matrix multiplication using dynamic memory allocation.

a) Illustrate the correctness of the program.

b) Justify the inference when outer “for” loop is parallelized with and without using the explicit data scope variables.

Threads	Input 1	Input 2	Input 3	Input 4
1	0.0523082	4.5833636	21.164281	59.7276663
2	0.271216	2.381371	10.654431	30.528845
4	0.138797	1.17569	5.467799	15.528917
8	0.115731	1.004121	4.102726	10.169698

Input Size	T1	T2	T4	T8
500	0.0523082	0.271216	0.138797	0.115731
1000	4.5833636	2.381371	1.17569	1.004121
1500	21.164281	10.654431	5.467799	4.102726
2000	59.726663	30.528845	15.528917	10.169698

Program 3: A) Write an OpenMP program for Cache unfriendly sieve of Eratosthenes and Cache friendly Sieve of Eratosthenes for enumerating prime numbers upto N and prove the correctness. B)Write an OpenMP program for Cache unfriendly sieve of Eratosthenes and Cache friendly and parallel Sieve of Eratosthenes for enumerating prime numbers upto N and prove the correctness.

Input	ET Unfriendly	ET Friendly
10000	0.0000812	0.0001171
100000	0.0010155	0.0010424
1000000	0.0088242	0.0081463
10000000	0.0615211	0.0575241
100000000	1.25026	0.577236

Input	ET Friendly	ET Parallelized
10000	0.0000717	0.0043618
100000	0.0009393	0.0003708
1000000	0.0086126	0.0012846
10000000	0.059223	0.01263
100000000	0.579021	0.134623

Program 4 : Write an OpenMP program to convert a color image to black and white image.

a) Demonstrate the performance of different scheduling techniques for varying chunk values b) Analyze the scheduling patterns by assigning a single color value for an image for each thread

Input Size	Default	Static	Dynamic	Guided
230400	0.00122	0.000608	0.000604	0.000608
360000	0.000924	0.000901	0.000888	0.000884
1440000	0.00405	0.003979	0.003952	0.004298
9101511	0.030961	0.052081	0.029341	0.030831

Input Size	Default	Static	Dynamic	Guided
480x480	0.00122	0.000608	0.000604	0.000608
800x450	0.000924	0.000901	0.000888	0.000884
1600x900	0.00405	0.003979	0.003952	0.004298
4267x2133	0.030961	0.052081	0.029341	0.030831

Program 5 : Write an OpenMP parallel program for Points Classification. Prove the correctness of a sequential program with that of parallel.

Input Size	T1	T2	T4	T8
100000	0.005627	0.003396	0.001773	0.001323
500000	0.027819	0.018494	0.008693	0.005101
1000000	0.054114	0.027341	0.015916	0.009909
5000000	0.027148	0.148274	0.068324	0.048517
10000000	0.544612	0.279002	0.151712	0.094188

Program 6 : Write an OpenMP program for Word search in a file and illustrate the performance using different sizes of file.

Input Size(KB)	T1	T2	T4	T8
4.97	0.001791	0.002109	0.001877	0.002
15.54	0.006311	0.003854	0.00319	0.003444
96.93	0.032227	0.015413	0.010198	0.010064
1390.83	0.391242	0.201588	0.127719	0.096927