1)

CALL				STRIKE	PUT			
OI	CHNG IN OI	IV	LTP	STRIKE	LTP	IV	CHNG IN OI	OI
26,476	3,347	40.55	649.35	19,000.00	1.25	29.67	23,075	2,07,101
151	-61	-	595.3	19,050.00	1.4	27.81	4,791	27,615
1,778	-43	35.38	558.55	19,100.00	1.5	26.15	23,123	72,345
266	-3	27.69	496.65	19,150.00	1.65	24.52	6,551	38,101
3,142	128	29.03	449.7	19,200.00	1.9	22.79	51,343	1,56,071
1,817	-45	26.6	399.15	19,250.00	2.25	21.12	13,598	62,592
16,448	229	27.19	350.8	19,300.00	2.85	19.52	58,171	1,52,475
1,839	683	24.15	300.2	19,350.00	3.65	17.93	34,031	79,276
18,122	2,731	21.92	252.3	19,400.00	5.2	16.48	48,107	1,63,894
7,785	3,977	19.59	204.55	19,450.00	8.05	15.26	36,953	1,05,992
65,524	32,148	17.7	159.55	19,500.00	13	14.36	1,07,889	2,79,530
37,656	27,126	16.15	117.2	19,550.00	20.7	13.39	89,271	1,74,300
1,51,436	94,295	14.89	80	19,600.00	33.6	12.62	1,63,027	3,38,542
1,57,580	79,309	14.11	50.45	19,650.00	53.9	12.07	16,150	1,30,006
3,00,865	90,476	13.59	28.75	19,700.00	82.2	11.54	-279	1,35,285
1,92,880	63,584	13.39	14.9	19,750.00	118.25	10.8	-295	28,896
3,13,997	48,874	13.69	7.9	19,800.00	161.25	9.63	-10,238	66,718
1,45,761	31,725	13.93	4.05	19,850.00	207.65	-	-4,011	9,984
2,23,031	40,826	14.56	2.45	19,900.00	256	-	-4,397	32,821
1,03,959	24,872	15.57	1.75	19,950.00	304.8	-	-957	6,162
2,33,694	493	16.74	1.4	20,000.00	354.55	-	-4,810	32,747

During the 1st half of the market

Total OI (CALL) = 2004207

Total OI (PUT) = 2300453

Therefore, Put Call Ratio = Total OI (PUT) / Total OI (CALL)

= 2300453/2004207

= **1.15**

PCR above 1 indicates that the put volume has exceeded the call volume. It indicates an increase in the **bearish sentiment**.

During the 2nd half of the market

CALL				STRIKE	PUT			
OI	CHNG IN OI	IV	LTP		LTP	IV	CHNG IN OI	OI
26,225	3,096	-	700.45	19,000.00	1.25	30.2	27,213	2,11,239
124	-88	30.61	649.9	19,050.00	1.25	28.44	5,068	27,892
1,740	-81	30.3	598.4	19,100.00	1.35	26.93	24,510	73,732
259	-10	30.31	554.9	19,150.00	1.55	25.21	10,941	42,491
2,991	-23	-	496.25	19,200.00	1.7	23.54	43,749	1,48,477
1,742	-120	-	449.25	19,250.00	1.95	22.08	13,609	62,603
16,248	29	-	399.2	19,300.00	2.35	20.53	60,276	1,54,580
1,688	532	-	347.5	19,350.00	2.8	19.02	43,225	88,470
16,586	1,195	-	300	19,400.00	3.55	17.55	52,122	1,67,909
6,178	2,370	13.03	251.3	19,450.00	4.55	15.96	71,555	1,40,594
56,923	23,547	11.94	202.9	19,500.00	6.9	14.88	1,12,187	2,83,828
23,296	12,766	12.61	156.9	19,550.00	10.75	13.83	72,829	1,57,858
99,620	42,479	11.95	113.3	19,600.00	17.7	12.97	1,87,761	3,63,276
1,04,216	25,945	11.49	75.45	19,650.00	29.45	12.25	1,16,500	2,30,356
2,71,561	61,172	11.2	45.25	19,700.00	49.2	11.9	1,09,775	2,45,339
1,97,099	67,803	11.15	24.4	19,750.00	78.2	11.93	17,112	46,303
3,34,652	69,529	11.35	12.15	19,800.00	116.2	12.26	-18	76,938
1,56,865	42,829	11.56	5.65	19,850.00	159.7	13.27	-2,363	11,632
2,34,323	52,118	12.2	2.95	19,900.00	206	14.2	-6,094	31,124
88,078	8,991	13.13	1.8	19,950.00	253.75	17.07	-1,188	5,931
2,34,054	853	14.46	1.35	20,000.00	304.15	18.62	-4,185	33,372

Total OI (CALL) = 1874468

Total OI (PUT) = 2603944

Therefore, Put Call Ratio = Total OI (PUT) / Total OI (CALL)

$$= 2603944/1874468$$

$$= \mathbf{1.39}$$

PCR above 1 indicates that the put volume has exceeded the call volume. It indicates an increase in the **bearish sentiment**.

2)

For finding support and resistance level for option chain during the 1st half of the market and during 2nd half of the market.

A. <u>During 1st half of the market</u>

CALL				STRIKE	PUT			
OI	CHNG IN OI	IV	LTP		LTP	IV	CHNG IN OI	OI
26,476	3,347	40.55	649.35	19,000.00	1.25	29.67	23,075	2,07,101
151	-61	-	595.3	19,050.00	1.4	27.81	4,791	27,615
1,778	-43	35.38	558.55	19,100.00	1.5	26.15	23,123	72,345
266	-3	27.69	496.65	19,150.00	1.65	24.52	6,551	38,101
3,142	128	29.03	449.7	19,200.00	1.9	22.79	51,343	1,56,071
1,817	-45	26.6	399.15	19,250.00	2.25	21.12	13,598	62,592
16,448	229	27.19	350.8	19,300.00	2.85	19.52	58,171	1,52,475
1,839	683	24.15	300.2	19,350.00	3.65	17.93	34,031	79,276
18,122	2,731	21.92	252.3	19,400.00	5.2	16.48	48,107	1,63,894
7,785	3,977	19.59	204.55	19,450.00	8.05	15.26	36,953	1,05,992
65,524	32,148	17.7	159.55	19,500.00	13	14.36	1,07,889	2,79,530
37,656	27,126	16.15	117.2	19,550.00	20.7	13.39	89,271	1,74,300
1,51,436	94,295	14.89	80	19,600.00	33.6	12.62	1,63,027	3,38,542
1,57,580	79,309	14.11	50.45	19,650.00	53.9	12.07	16,150	1,30,006
3,00,865	90,476	13.59	28.75	19,700.00	82.2	11.54	-279	1,35,285
1,92,880	63,584	13.39	14.9	19,750.00	118.25	10.8	-295	28,896
3,13,997	48,874	13.69	7.9	19,800.00	161.25	9.63	-10,238	66,718
1,45,761	31,725	13.93	4.05	19,850.00	207.65	-	-4,011	9,984
2,23,031	40,826	14.56	2.45	19,900.00	256	-	-4,397	32,821
1,03,959	24,872	15.57	1.75	19,950.00	304.8	-	-957	6,162
2,33,694	493	16.74	1.4	20,000.00	354.55	-	-4,810	32,747

We know that we can find resistance level from CALL side open Interest and support level from PUT side open Interest.

For resistance level, maximum value of OI in CALL option is **3,13,997** and the corresponding STRIKE price is **19,800** and the second highest from the below value of OI in CALL option is **2,33,694** and the corresponding STRIKE price is **20,000**. Therefore, first resistance level is **19,800** and the second resistance level is **20,000**.

Similarly for support level, maximum value of OI in PUT option is **3,38,542** and the corresponding STRIKE price is **19,600** and the second highest from the above value of OI in PUT option is **2,79,530** and the corresponding STRIKE price value is **19,500**. Therefore, the first support level is **19,600** and the second support level is **19,500**.

B. During 2nd half of the market

CALL				STRIKE	PUT			
OI	CHNG IN OI	IV	LTP	**STRIKE**	LTP	IV	CHNG IN OI	OI
26,225	3,096	-	700.45	**19,000.00**	1.25	30.2	27,213	2,11,239
124	-88	30.61	649.9	**19,050.00**	1.25	28.44	5,068	27,892
1,740	-81	30.3	598.4	**19,100.00**	1.35	26.93	24,510	73,732
259	-10	30.31	554.9	**19,150.00**	1.55	25.21	10,941	42,491
2,991	-23	-	496.25	**19,200.00**	1.7	23.54	43,749	1,48,477
1,742	-120	-	449.25	**19,250.00**	1.95	22.08	13,609	62,603
16,248	29	-	399.2	**19,300.00**	2.35	20.53	60,276	1,54,580
1,688	532	-	347.5	**19,350.00**	2.8	19.02	43,225	88,470
16,586	1,195	-	300	**19,400.00**	3.55	17.55	52,122	1,67,909
6,178	2,370	13.03	251.3	**19,450.00**	4.55	15.96	71,555	1,40,594
56,923	23,547	11.94	202.9	**19,500.00**	6.9	14.88	1,12,187	2,83,828
23,296	12,766	12.61	156.9	**19,550.00**	10.75	13.83	72,829	1,57,858
99,620	42,479	11.95	113.3	**19,600.00**	17.7	12.97	1,87,761	3,63,276
1,04,216	25,945	11.49	75.45	**19,650.00**	29.45	12.25	1,16,500	2,30,356
2,71,561	61,172	11.2	45.25	**19,700.00**	49.2	11.9	1,09,775	2,45,339
1,97,099	67,803	11.15	24.4	**19,750.00**	78.2	11.93	17,112	46,303
3,34,652	69,529	11.35	12.15	**19,800.00**	116.2	12.26	-18	76,938
1,56,865	42,829	11.56	5.65	**19,850.00**	159.7	13.27	-2,363	11,632
2,34,323	52,118	12.2	2.95	**19,900.00**	206	14.2	-6,094	31,124
88,078	8,991	13.13	1.8	**19,950.00**	253.75	17.07	-1,188	5,931
2,34,054	853	14.46	1.35	**20,000.00**	304.15	18.62	-4,185	33,372

We know that we can find resistance level from CALL side open Interest and support level from PUT side open Interest.

For resistance level, maximum value of OI in CALL option is **3,34,652** and the corresponding STRIKE price is **19,800** and the second highest from the below value of OI in CALL option is **2,34,323** and the corresponding STRIKE price is **19,900**. Therefore, first resistance level is **19,800** and the second resistance level is **19,900**.

Similarly for support level, maximum value of OI in PUT option is **3,63,276** and the corresponding STRIKE price is **19,600** and the second highest from the above value of OI in PUT option is **2,83,828** and the corresponding STRIKE price value is **19,500**. Therefore, the first support level is **19,600** and the second support level is **19,500**.

3)

Consider two common option trading strategies: a Long Call and a Short Put.

Strategy 1: Long Call

Assumptions:

Buy a Call option with a strike price of X.

Pay a premium P for the option.

Payoff Table for Long Call:

Spot Price (S)	Payoff
$S \leq X$	$-P$
$S > X$	$S - X - P$

The investor pays a premium (P) to buy the Call option. If the spot price (S) is below or equal to the strike price (X), the option will not be exercised, and the payoff is **−P (the premium paid).** If the spot price is above X, the option will be exercised, and the payoff is **S−X−P.**

Strategy 2: Short Put

Assumptions:

Sell a Put option with a strike price of X.

Receive a premium P for the option.

Payoff Table for Short Put:

Spot Price (S)	Payoff
$S \leq X$	$S - X - P$
$S > X$	P

The investor receives a premium (P) for selling the Put option. If the spot price (S) is below or equal to the strike price (X), the option will be exercised, and the payoff is **S−X+P**. If the spot price is above X, the option will not be exercised, and the payoff is the **premium received (P).**

Explanation:

A) Long Call:

Bullish Strategy: Profits when the market goes up.
Maximum Loss: Limited to the premium paid (P).
Maximum Gain: Unlimited.

B) Short Put:

Bullish Strategy: Profits when the market goes up.
Maximum Loss: Unlimited (if the market crashes significantly).
Maximum Gain: Limited to the premium received (P).

Note: The payoff tables assume European-style options for simplicity, and actual payoffs may vary based on factors like option style, transaction costs, and market conditions. Additionally, these strategies involve risks, and it is crucial for investors to understand and manage these risks effectively.