NUMERICALS FOR PRACTICE: DEMAND ANALYSIS AND EQUILIBRIUM

(The answers are given in blue)

Q1) Given the following data, calculate TR, AR and MR. Identify the market structure as well

Quantity	0	1	2	3	4
Price	20	20	20	20	20

ANS:

AR	20	20	20	20	20
TR	0	20	40	60	80
MR	-	20	20	20	20

As price remains the same across all units of output, the market structure is perfect competition

Q2) Given the following data, calculate TR, AR and MR. Identify the market structure as well

Quantity	0	1	2	3	4	5	6	7	8
Price	5	5	5	5	5	5	5	5	5

ANS:

AR	5	5	5	5	5	5	5	5	5
TR	0	5	10	15	20	25	30	35	40
MR	-	5	5	5	5	5	5	5	5

As price remains the same across all units of output, the market structure is perfect competition

Q3) Given the following data, calculate TR, AR and MR.

Quantity	1	2	3	4	5
Price	12	10	8	6	4

ANS:

AR	12	10	8	6	4
TR	12	20	24	24	20
MR	-	8	4	0	-4

Q4) Given the following data, calculate TR, AR and MR

Quantity	1	2	3	4	5
Price	10	9	8	7	6

ANS:

AR	10	9	8	7	6
TR	10	18	24	28	30
MR	-	8	6	4	2

Q5) Given the following data for supply and demand for a commodity:

Price per unit (Rs)	Quantity demanded (units)	Quantity supplied (units)
5	80	550
4	120	480
3	200	400
2	300	300
1	500	180

Identity the equilibrium price, equilibrium quantity demanded and supplied.

ANS: The equilibrium price is Rs 2 wherein quantity demanded = quantity supplied at 300 units.

Q6) Given the hypothetical demand for shirts. Calculate market demand

Price (Rs)	Quantity demanded by A	Quantity demanded by B	Quantity demanded by C
20	0	2	3
15	1	2	5
10	2	2	8
5	3	3	10
3	4	4	12

ANS: The market demand is the horizontal summation of all individual demands.

Price	Market demand
20	5
15	8
10	12
5	16
3	20

Q7) If demand function for a commodity is given as Qd= 600-2P and supply function is given as Qs= 3P, make a schedule of demand and supply at prices Rs 80, Rs 100, Rs 120, Rs 140 and Rs 160. Also find the equilibrium price and quantity.

ANS:

Price	Quantity demanded	Quantity supplied
80	600-2(80)= 440	3(80)= 240
100	600-2(100)= 400	3(100)= 300
120	360	360
140	320	420
160	280	480

Equilibrium price is Rs 120. Equilibrium quantity is 360 units.

Q8) If demand function for a commodity is given as Qd= 40-0.1P and supply function is given as Qs=(-20+0.2P), find the equilibrium price and quantity.

ANS: At equilibrium, Qd=Qs

Thus, 40-0.1P= -20+0.2P

40+20= 0.2P+0.1P

60= 0.3P

P= Rs 200

At P= 200, Qd=Qs= 40- 0.1(200) = 20 units