producing 5 units = ₹ 1,060.

5. **Calculate total cost and average cost with the help of the following data:**

Output (Units)	1	2	3
Marginal Cost (₹)	20	16	12

Sol.

Output (Units)	Marginal Cost (₹)	Total Cost (₹)	Average Cost (₹)
1	20	20	20
2	16	36	18
3	12	48	16

[**Note:** There are no fixed costs.]

6. **Calculate total variable cost and total cost from the following cost schedule of a firm whose fixed costs are ₹ 10.**

Output (Units)	1	2	3	4
Marginal Cost (₹)	6	5	4	6

Sol.

Output (Units)	Marginal Cost (₹)	Total Fixed Cost (₹)	Total Variable Cost (₹)	Total Cost (₹)
1	6	10	6	16
2	5	10	11	21
3	4	10	15	25
4	6	10	21	31

11. A firm's average fixed cost, when it produces 3 units, is ₹ 30. Its average total cost schedule is given below. Calculate its average variable cost and marginal cost at each level of output.

Output (Units)	1	2	3
Average Total Cost (₹)	110	78	70

Sol.

Output (Units)	Average Total Cost (₹)	Total Fixed Cost (₹)	Average Fixed Cost (₹)	Average Variable Cost (₹)	Total Variable Cost (₹)	Marginal Cost (₹)
1	110	90	90	20	20	20
2	78	90	45	33	66	46
3	70	90	30	40	120	54

AFC = ₹ 30, when output = 3 units

∴ TFC = AFC × Output

= ₹ 30 × 3

= ₹ 90

We know, TFC remains constant at all levels of output.

12. Complete the following table:

Output (Units)	Average Variable Cost (₹)	Total Cost (₹)	Marginal Cost (₹)
1	20	80	—
2	15	—	—
3	20	—	—

Sol.

Output (Units)	Total Fixed Cost (₹)	Average Variable Cost (₹)	Total Variable Cost (₹)	Total Cost (₹)	Marginal Cost (₹)
1	60	20	20	80	20
2	60	15	30	90	10
3	60	20	60	120	30

10. **Show with the help of a numerical example that average cost is constant when marginal cost is equal to it.** ***[CBSE (F) 2013]***

Ans. Following table considers a situation when MC = AC over a range of output. It is a situation of constant returns to a factor.

Output	Total Cost	MC	AC
1	10	10	10
2	20	10	10
3	30	10	10
4	40	10	10
5	50	10	10

The table shows that when constant returns to a factor prevail over a range of output (1-5 units of output) MC remains constant. Consequently, TC increases at a constant rate and MC and AC are found to be equal to each other. In the entire range of output when AC = MC, AC is also found to be constant (like MC).