Self Test
Monopoly, Dominant Firm and OPEC

Click on True or False to test your knowledge of the chapter.

1. True False Economists like perfectly competitive markets because in the absence of externalities such a market is efficient (i.e. it maximizes social welfare as measured by consumer plus producer surplus.)

2. True False A monopolist maximizes profits where price equals marginal cost.

3. True False A monopolist maximizes profits where marginal revenue equals marginal cost, if the slope of marginal revenue is less than the slope of marginal cost.

4. True False A monopolist with a higher marginal cost and less elastic price response at optimal output will charge a higher price. (Note a less elastic price response is when the elasticity gets closer to zero, that is ε_p increases or $|\varepsilon_p|$ decreases.)

5. True False If OPEC is a monopolist with MC = 10 and demand elasticity equals -2 at optimal output, its optimal price is 20.

6. True False For a linear demand equation, marginal revenue is twice as steep as demand.

7. True False If demand is $Q_d = 59.375 - 0.5P$ and costs are $TC = Q^3 - 25Q^2 + 200Q$. The monopolist will charge P = $92.16, produce Q = 13.29 units, and receive economic profits of 635.21.

8. True False If there were no barriers to entry and firms could enter with the same cost curve and market demand as in 7, then we would end up with 2 firms in the industry and they would each produce at their minimum average cost of $25, price would be $50 and the total demand would be 47.

9. True False There are no social losses from monopoly in the above example, there is simply a redistribution from the consumer to the monopolist.

10. True False If a monopolist faces the above demand of $Q_d = 59.375 - 0.5P$ and costs of $TC = Q^3 - 25Q^2 + 200Q$ and a tax of t=$2 per unit, the monopolist will charge P = $92.28, produce Q = 13.24 units and receive economic profits of $635.15. Government revenues would equal $26.47 and social welfare equals $810.36.

11. True False If the monopolist in 10 faces an ad valorem tax of 10%, the monopolist will charge P = $92.56, produce Q = 13.10 units, and receive economic profits of $513.32. Government revenues would equal $121.25 and social welfare would equal $806.24.

12. True False If the monopolist in 10 faces an economic profit tax of $t_\pi = 50\%$ per unit, price, and quantity will be the same as without the tax, but profits will be lower than without a tax.

13. True False A profit tax is more likely to be on accounting than economic profits. In such a case, the net profit function would be $TR - TC - t_\pi(TR - TC + OC)$ where OC is opportunity cost. In such a case dQ/dt_π is not zero but < 0.

14. True False If the monopolist in questions 10 faces a lump sum tax of tax of $100, the monopolist will charge the same price and quantity and make the same after tax profits as in the case with no tax.

15. True False If a monopolist faces demand of $Q_d = 59.375 - 0.5P$ and costs of $TC = Q^3 - 25Q^2 + 200Q$ as in question 10 and faces a maximum price of 80, she will produce more than with no price control.

16. True False Standard Oil Company broke up in 1911 because technology changed and reduced the economies of scope and scale for the oil companies.

17. True False The Seven Sisters were Aramco, NIOC, CNPC, Pertamina, Petrobras, Pdvsa, Pemex.

18. True False The Red Line agreement caused the formation of OPEC.

19. True False OPEC currently has 12 members.

20. True False Oil prices have been quite unstable since OPEC took over control of the markets in 1960.

21. True False A two plant monopolist with $MC1 = 15 + 2Q1$ and $MC2 = 5 + 6Q2$ facing demand of $Qd = 100 - P$, should produce 17.5 units in plant 1, 7.5 units in plant 2 and charge $75.

22. True False In a dominant firm model, the demand for the dominant firm is market demand minus the demand for the competitive fringe.

23. True False Suppose OPEC is dominant firm with world demand $Qw = 50 - 5P + 1.2Y$. $Y = 75$. Marginal cost for OPEC is $MCo = 2 + 6Q$ and marginal cost for the fringe is $MCf = 5 + 15Qf$. If OPEC maximizes profits it will produce less than the fringe and make less profits than the fringe.

24. True False If world oil demand elasticity is $\varepsilon_w = -0.6$, fringe supply elasticity is $\varepsilon_f = 0.4$, world oil consumptions is $Q_w = 75.04$ and OPEC production is 29.3, then OPEC's demand elasticity is -0.13.

25. True False If OPEC's price elasticity is -2.16, OPEC's total production is 29.3, and Nigeria's production is 1.96, then Nigeria's elasticity, if only Nigeria changes its oil price, is -32.31. However, if all OPEC countries change their oil price, then Nigeria will have the same elasticity as OPEC.

26. True False Saudi Arabia, Kuwait, and the UAE tend to be the lowest absorber countries within OPEC.

27. True False If OPEC is maximizing social welfare, it should charge the same price for oil in the domestic market as in the export market.

28. True False Saudi Arabia was one of the original founders of OPEC.

29. True False The highest oil reserve country is UAE (United Arab Emirates).

30. <u>True</u> <u>False</u>. At the beginning of the eighties, low energy prices increased consumption of oil and gas causing the prices for oil products to rise sharply.

31. <u>True</u> <u>False</u>. Assume that OPEC consists of two countries, a low cost and a high cost country whose marginal costs functions are

$$MC_1 = 2 + Q_1 \text{ and } MC_2 = 4 + 2Q_2.$$

The demand function for OPEC's oil is $Q = 20 - 2P$. Then, the high cost country is producing much less than the low cost country.

32. <u>True</u> <u>False</u> There were five prominent global oil players prior to 1900.

33. <u>True</u> <u>False</u> Suppose domestic demand for OPEC is $Q = 40 - P$, marginal cost $MC = 2 + Q$ and export demand is $Q = 80 - 0.5P$. The optimal domestic and export prices are where marginal revenue equals marginal cost at $57.71. (contributed by Durga Kar)

34. <u>True</u> <u>False</u> The increase in demand for gasoline in the late 1910's and 1920's resulted in increasing profits for the large, dominant oil companies such as RD Shell and Standard Oil of New Jersey in the late 1920's and 1930's.

35. <u>True</u> <u>False</u> Suppose that the New York harbor price for gasoline is $55 per barrel, for distillate is $42 per barrel, for residual fuel oil is $31, and for the remainder of the barrel is $25 per barrel. The share to each of these products from Saudi crude was 0.62, 0.23, 0.10, and 0.05. Refinery margins are $6/barrel and transport from the Arabian Gulf to New York is $2.50/barrel. If Saudi Arabia were practicing netback pricing, they would charge $39 per barrel of oil.

36. <u>True</u> <u>False</u> OPEC formed in 1960 to take control of the world oil market and raise oil prices.

37. <u>True</u> <u>False</u> An ad valorem tax on a monopoly is better than the unit tax, as it moves the society closer to the social optimum (Contributed by Ganna Bielenka)

38. <u>True</u> <u>False</u> Suppose that the demand curve on the monopolistic energy market in Ukraine is $Q_d = 80 - 2*P$, and the monopoly's total cost is $TC = 0.4Q^2 + 10Q + 50$. The government puts on a unit tax $t = 12$. Then, the optimal quantity for the monopolist will be 10. (Contributed by Ganna Bielenka)

39. <u>True</u> <u>False</u> Within OPEC, the smaller is the country share, the higher is temptation to cheat by producing over their quota (Contributed by Oksana Chernenko)

40. <u>True</u> <u>False</u> Suppose OPEC is a dominant firm with world demand $Qw = 25-0.2P$. Long run marginal cost for OPEC is $MCo = 20 + 0.5Qo$ and marginal cost for the fringe is $MCf = 80 + 2Qf$. If OPEC maximizes profits it will produce 21.697 and the price will be P=61.852.

41. <u>True</u> <u>False</u> Now improvements in light tight oil technology decrease the fringe's marginal cost to 60+2Qf. Now OPEC produces 9 or is at the kink and world price is $