

QUESTIONS - Emissions

First & Last Name:

Using the information located in www.gwellwood.com/subjects/mechanics/emissions/, the internet, your brain, and other sources to answer the following questions:

1. How did “smog” get its name?
2. In what specific ways is Tetraethyl lead hazardous to health?
3. Go to <http://www.airhealthbc.ca/community.htm> and find TODAY’s “Air Quality Index” for the town you live in right now. What is it?
4. What place in your Province has the worst air quality right today, and what is the index?
5. In your own words, describe what “Air Quality Index” means
6. What is HC ?
7. What causes HC?

8. In what ways do HC harm our health?

9. What is CO?

10. What causes CO?

11. In what way does CO harm our health?

12. What is NO_x?

13. What causes NO_x?

14. In what way does NO_x harm our health?

15. What are Particulates?

16. What causes Particulates?

17. In what way do Particulates harm our health? (*Rollin' Coal in the Bro-Dozer*)

Engines are often modified in an effort to reduce emissions, sometimes with success, sometimes not.

18. What pollutant(s) would be reduced by reducing the compression ratio (smog fix circa 1974)? (*Think about how a lower compression ratio would affect combustion*).

19. How does reducing the compression ratio affect the power of the engine?

20. What pollutant would be reduced by increasing valve overlap (smog fix circa 1975)? (*Think about how increased valve overlap would affect combustion*).

21. How would increasing the valve overlap affect the fuel economy of the engine?

22. What pollutant would be reduced by raising the operating temperature of the engine (smog fix circa 1980)? (*Think about how a higher operating temperature would affect combustion*).

23. How would raising the operating temperature of the engine affect fuel economy of the engine?

24. What pollutant would be reduced by increasing the spark plug gap (smog fix circa 1976)? *(Think about how a higher spark gap would affect spark voltage, and how that in turn would affect combustion).*

25. What does "PCV" stand for?

26. How does a PCV system reduce emissions?

27. What are three things that could happen to the motor if a PCV system is non-functional?

a.

b.

c.

28. The PCV system can increase fuel economy. How is this possible?

29. What does "AIR" stand for?

30. How does an AIR system reduce emissions?

31. The AIR system DOES reduce power at WOT. How is this possible?

32. What does "EGR" stand for?

33. How does an EGR system reduce emissions?

34. The EGR system does not reduce power at WOT. How is this possible?

35. The EGR system INCREASES fuel economy. How is this possible?



36. Describe in your own words how the Evaporative System works.

GOOGLE these answers <<< DO NOT SKIP THIS STEP

37. What are five causes for high HC?

a.

b.

c.

d.

e.

38. What are three causes for high CO?

a.

b.

c.

39. What are five causes for high NOX?

a.

b.

c.

d.

e.

40. Diesel engines are tested for opacity. What is "Opacity?"

41. What are seven causes for high opacity?

a.

b.

c.

d.

e.

f.

g.

42. An engine has high HC, but low CO. What is the likely cause?

43. An engine has high HC and high CO. What is the likely cause?

44. Mr. Wellwood's truck has a BIG camshaft with LOTS of overlap, and HIGH compression. What would the pollutants be like....

a. At idle:

b. At cruise: