

Bayfield Electrathon Final Exam

1. What gear ratio does Gary Raymond recommend a Pentad G motor run for a banked oval?

- a. 1:5.0
- b. 3:4.1
- c. 1:4.0
- d. none of the above

2. What voltage did we run on the Bayfield Electrathon?

- a. 12 VDC
- b. 24 VDC
- c. 24 VAC
- d. none of the above

3. At what speed does aerodynamics play a more important role than rolling friction??

- a. 10 mph
- b. 20 mph
- c. 30 mph
- d. none of the above

4. What tool do you use to measure volts, amps, and resistance?

- a. volt meter
- b. multi meter
- c. EMF meter
- d. none of the above

5. How many inches above the drivers head must the roll bar be?

- a. 2"
- b. 3"
- c. 4 cm
- d. 2 cm

6. What material has the highest strength to weight ratio?

- a. aluminum
- b. chrome moly
- c. carbon fiber
- d. glass fiber

7. What type of safety harness is specified by Iowa Electrathon?

- a. two point
- b. three point
- c. four point
- d. five point

8. What is the main factor(s) which effect rolling resistance?

- a. all of the below
- b. wheel diameter
- c. vehicle weight
- d. tire style/tread

9. What does a fuse/disconnect do?

- a. increase amperage
- b. prevent fires
- c. reduce line loss
- d. none of the above

10. What technique is used to make sting yet light weight composite panels/parts?

- a. tool and die
- b. clamping
- c. vacuum bagging
- d. reverse mold release

11. What are the three brands of Electrathon motors. ?

- a. briggs, honda, johnson
- b. pinnet, pentag, nelson
- c. pentad, e-tech, lynch
- d. fortrax, electra, pentad

12. What could photovoltaic panels (solar) be used for in electrathon?

- a. all of the below
- b. extend vehicle range
- c. heat batteries
- d. charge batteries

13. What is the average speed of a top Electrathon racer during an hour marathon race?

- a. 10-20 mph
- b. 0-10mph
- c. 30-40mph
- d. 40-50mph

14. What states have Electrathon type programs

- a. Oregon, California, Texas
- b. Mexico, Wisconsin, Minnesota
- c. Iowa, Michigan, Nebraska
- d. Iowa, Wisconsin, Minnesota

15. What does a motor controller do?

- a. switch a motor on and off
- b. increase the efficiency of a motor
- c. regulate the speed of a motor
- d. increase the average speed

16. What does an E-meter do?

- a. Iowa regulation
- b. monitor speed
- c. monitor amps and volts
- d. monitor ohms

17. What does the pot box do?

- a. monitor amps
- b. regulate speed with controller
- c. safety regulation
- d. speed indicator

18. How quickly does a driver have to exit an Electrathon vehicle?

- a. 10 sec.
- b. 20 sec.
- c. 30 sec.
- d. 40 sec.

19. How many amp-hours do we get out of an Electrathon battery? (realistically)

- a. 10 amp hours
- b. 20 amp hours
- c. 65 amp hours
- d. 35 amp hour

MATCHING:

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|------------------------------|--------------------------------------|
| _____ 20. motor | A. energy storage |
| _____ 21. potbox | B. emergency power cut off |
| _____ 22. battery | C. monitor volts & amps |
| _____ 23. controller | D. regulates electricity to motor |
| _____ 24. seat belt | E. keeps driver in seat |
| _____ 25. rolling resistance | F. air flow |
| _____ 26. aerodynamics | G. throttle |
| _____ 27. E-meter | H. electrical safety |
| _____ 28. fuse | I. force against the vehicle rolling |
| _____ 29. disconnect | J. air movement over the vehicle |

WRITTEN ANSWER:

30. Why is top speed not an important factor for a successful Electrathon racer?

31. What is rolling resistance and what effect does it have on the overall efficiency of an Electrathon racer?

32. Why is collecting data such as gear ratio's, laps, amp hours, etc.. important to do?

33. How and why should a lead acid battery be conditioned before the race?

34. What are the three race classes specified by the Iowa Electrathon?

Name three of the most important factors to designing and building a fast Electrathon racer?

35. _____

36. _____

37. _____

Name 10 things you learned about electric vehicles during this class

38.

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42.

43.

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46.

47.

48. What grade do deserve for this class? Name 10 things you did to build the current Electrathon racer to earn this grade.