EVENT 1: FERMI QUESTIONS

(Dated 9/2021)

OBJECTIVE: To estimate the order of magnitude of a quantity that is difficult or impossible to measure.

RULES:

a. Each team will be provided with a list of ten Fermi Questions.

b. Each team will have 30 minutes in which to answer the questions.

1. c. Each team will submit a single set of answers.

d. All answers must be recorded in order of magnitude format

(i.e., 104 not 3 x 104, 106 not 7 x 105).

e. No devices (cell phones, ipods/ipads, calculators, netbooks, computers, smart-watchs, etc.)

preprinted references material shall be permitted to be used during the event.

COMPETITION AND SCORING:

Ten points will be awarded for each correct answer (correct order of magnitude). There will be 1 point off for each order of magnitude difference from the accepted order of magnitude.

No answer will score less than zero.

Sample Fermi Questions:

How much land area (in square meters) is found on earth?

(Answers1014)

How many revolutions will a 14-inch tire have to make during a crossing

of the continental United State? (Answer is106)

How many liters of air does an adult inhale in a 24-hour day?

(Answer is 104)

How many square meters of turf (real or artificial) are there in

a National Football League Stadium? (Answer is 104)

**An automobile travels 100,000 km before the tire tread wears out.**

**What thickness of rubber wears off a tire each revolution of a wheel?**

**Please express your answer in centimeters.**

**(Answer is 10-8)**

Testing procedures & scoring may need to be modified if the Olympics is held virtually.

*Updates to the rules and Forum discussion / questions with answers are available by going to the NJAAPT website:* ***njaapt.wildapricot.org*** *(top menu, “Events” and “Forum”).* *It is the team’s responsibility to periodically check in or inquire about changes and clarifications to the rules.*