

Winter 2022 Midterm Exam questions for **2022 Mar 03**

Besides #2, I will select THREE of the following questions, and announce them at 0900 on the day of the Midterm. **You MUST answer #2 and any TWO of the others.** Submit your answers as PDF or Word documents by e-mail prior to 1030. Answers should be single-spaced, and ~3 pages long @ [500 ~ 750 words].

2. Darwin said that, "*If Wallace had my MS sketch written out in 1842 he could not have made a better short abstract!*" Compare and contrast the two papers presented at the Linnaean Society: to what extent is the Wallace 1858 paper a '*short abstract*' of Darwin's 1842 sketch?
3. Draw a sketch of Plato's "*Cave*" as described in Book VII of The Republic. Explain Plato's comment, "*The truth would be literally nothing but the shadows of the images.*"
4. Describe the impact of **exploration** in the late 18th and early 19th century on the accepted view of the nature of species as outlined by Linnaeus.
5. Darwin regarded the criticisms of **Lord Kelvin** and **Fleming Jenkin** as the greatest challenges to his theory of evolution. Describe the nature of these criticisms, and the refutations of them.
6. The **NOVA film "DNA: the Secret of Photo 51"** emphasizes the importance of "*Photo 51*" to discovery of the structure of DNA, criticizes the manner in which Watson & Crick gained access to it, and suggests that Franklin deserves much more credit than usually given. Give your own assessment of the conventional and revisionist versions: discuss the scientific ethics involved as you understand them.
7. The **Luria-Delbruck Experiment** demonstrated that genetic mutations, rather than acquired changes in metabolism, were responsible for phage resistance in bacteria. Using the calculations for Experiments 16 & 10A [course notes] as examples, **repeat the calculations for experiments 3 & 21A. Explain how these results support the mutation theory.**