Cosmology: Quiz 1
IUCAA-NCRA Graduate School
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1. Suppose we (erroneously) estimate the value of H_0 to be 5 km s^{-1} Mpc^{-1}. What would be the corresponding characteristic age of the universe inferred?

   (a) ~ 200 billion years.

   (b) ~ 50 billion years.

   (c) ~ 10 billion years.

   (d) ~ 2 billion years.

   (e) ~ 500 million years.

   [Correct: +4, Incorrect: -1, No attempt: 0]

2. If the comoving number density of galaxies as a function of redshift is given by $n(z)$, the number of objects we expect to see *per unit solid angle* in the redshift range $(z, z + \mathrm{d}z)$ is

   (a) $\mathrm{d}N = 4\pi \dfrac{c}{H(z)}(1+z)^2 \, n(z) \, d_A^2(z) \, \mathrm{d}z.$

   (b) $\mathrm{d}N = \dfrac{c}{H(z)}(1+z)^2 \, n(z) \, d_A^2(z) \, \mathrm{d}z.$

   (c) $\mathrm{d}N = 4\pi \dfrac{c}{H(z)}(1+z)^{-1} \, n(z) \, d_A^2(z) \, \mathrm{d}z.$

   (d) $\mathrm{d}N = \dfrac{c}{H(z)}(1+z)^{-1} \, n(z) \, d_A^2(z) \, \mathrm{d}z.$

   [Correct: +6, Incorrect: -2, No attempt: 0]