

SAT and ACT Combo Test: Answer Explanations

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Section 7 – ACT Science Test

13 minutes, 15 questions

1. Go to Table 1, look across the row labeled “Plt” and notice that Group II has the lowest value. **The correct answer is B.**
2. Go to Table 1 and focus on the columns for Group I and Group IV.
 - F. Group IV has a higher RBC, so eliminate this option.
 - G. Group IV has lower Hb, so eliminate this option.
 - H. Group IV has a lower WBC.
The correct answer is H.
 - J. H is correct, so this must be incorrect.
3. Look at Table 2 and notice the pattern for all three enzymes: Groups I, III, and IV are all about the same, but Group II is quite a bit higher. It’s reasonable to assume that a fourth enzyme also would follow this pattern.
The correct answer is D.
4. From the passage, we can see that Group II received ZnO-NPs alone, and Group III received ZnO-NPs along with *Arctium lappa L.* Now, look at the first row of Table 1. We can see that Group II has the lowest RBCs.
The correct answer is G.
5. Look at the passage rather than the figure to answer this question. The passage says, “Groups I and IV show normal myofibrillar architecture,” “Group II heart tissues show loss of normal architecture,” and “Heart tissues of Group III rats show alterations to the normal architecture...”
The correct answer is D.
6. Look at the flowchart in Figure 1. AC stress, ions, and water all have arrows that point toward water trees, so you can eliminate these three options. Only thermo-mechanical stress leads to a failure without first creating water trees. **The correct answer is H.**
7. Look at Figure 2. It shows a full period for curve 2, which is the voltage when PDs are present. This curve ends sooner than curve 1, but it does get past the halfway point, labeled as $T/2$. **The correct answer is B.**
8. The passage just before Figure 2 says that “ t_1 is the instant at which the first PD occurs and t_2 is the instant at which the second PD occurs.” Therefore, the time between PDs is the difference between these two values.
The correct answer is J.

9. According to the passage, cross-linked polyethylene is XLPE and inception voltage is U_i . Table 1 shows that at age 0, the voltage is 3.7 kV; at age 30, the voltage is 2.69 kV; at age 60, the voltage is 2.02 kV; and at age 90, the voltage is 1.98 kV. The values get smaller as age increases. (Because they are not next to each other in the table, circle the numbers you need.) **The correct answer is B.**
10. First, double check the temperature. All the data in Table 1 were gathered at 125°C, so the temperature won't affect the answer. Next, look for the pattern for electric field (E_f) of the XLPR/EPR over 0, 30, and 60 days. It is 4.70 kV/mm, 3.75 kV/mm, and 3.53 kV/mm. It is reasonable to assume that if a value existed for 90 days, it would be less than 3.53 kV/mm. **The correct answer is J.**
11. Student A says, "On the far side, the Moon's gravitational attraction is less and inertia exceeds it." Student A also says that "inertia and rotation create a centripetal force." **The correct answer is C.**
12. Student B states, "When the Earth is positioned between the Moon and Sun, the ocean is attracted to both, and thus there are two simultaneous high tides, one on each side of the Earth." Student B is describing the situation in Figure 1. Although the Sun isn't shown in the figure, Student B's description states that it would be on the side of Earth opposite of the Moon, and thus would be responsible for the far high tide. **The correct answer is G.**
13. Student B states that the Sun is much more massive than the Moon, but also further away. At the same time, the Moon has a stronger tide-generating force than the Sun. Therefore, the distance must have more of an effect than the mass. (Also, if you've had a physics class, you may remember that in the formula for gravitational force, the distance is squared.) **The correct answer is A.**
14. Both students cite the strong effect of the Moon on Earth's tides. G is incorrect because only Student A discusses centripetal force. H is incorrect because only Student B discusses the Sun. Finally, J is incorrect because the Moon generates more TGFs than the Sun. **The correct answer is F.**

15. This information would not affect Student A's explanation because it doesn't depend on the position of the Sun. However, Student B's explanation depends on the Sun's position opposite the Moon to form the far high tide. If the Sun and the Moon are arranged at right angles, Student B fails to explain the presence of the far high tide (albeit a lower one). **The correct answer is D.**