



The Student Doctor Network Presents

MCAT Strategy Workshop:

Critical Analysis and Reasoning



What is the Student Doctor Network?

- The Student Doctor Network is a community of health professionals and students dedicated to providing students, residents and practitioners with free and unbiased information.
- The educational mission of SDN is to assist and encourage all students through the challenging and complicated healthcare education process and into practice.

Introductions

- Dr. Anthony LaFond, MD-PhD.
- Director of MCAT Content for Next Step
- Worked with thousands of MCAT students over the last 10+ years
- Personally achieved a 42 MCAT



Prepping for the MCAT

Content Review

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Review sciences

Focus on areas of weakness

Strategy Development

Learn and perfect:

- Test Strategy
- Question Strategy

Practice!

- Full length sections
- Full length tests

How to highlight

- Read briskly, use highlighter to capture key points!
- What to look for:
 - Opinion
 - Points of contrast
 - Cause and effect!



The movement of art away from representation of things (paintings of people, places, events, etc.) into a wholly abstract presentation undoubtedly reached its zenith in the work of the color field painters. Exemplified by the work of Mark Rothko, color field painting sought to present color in its pure state. This purity made the color itself the subject of the painting, rather than a tool used to express something else. The cubists, surrealists, and other abstract expressionists working earlier in the 20th century may have distorted, mocked, and radically reduced representation (respectively), but it was the color field artists alone who completely stripped out any pretense of painting *something* other than the painting itself. Rothko's works consisted of little more than several large squares of contrasted colors, in various proportions and arrangements.

Those artists who become best known for representing a school of art – and indeed to those outside the highly specialized world of academic high art become the only known example of the school, their name synonymous with the school itself (Pollack and “Drip Painting”, Picasso and Cubism, Michelangelo and high Renaissance fresco, etc.) – achieve their notoriety through no more remarkable means than pursuing a certain artistic idea to its very core. The stripping away of every extraneous thought and impulse guided by history and habit leaves the core truth of the movement.

One cannot help but wonder, then, why no artist in the millennia before Rothko sought to pursue color itself as the subject of painting. Certainly artists the world over had experimented with how color was represented in their work. Japanese calligraphy paintings often reserved color for a single slash near the edge of the scroll. Zen Buddhist *ensō* eschew color altogether – using the purity of a single black circle on white background to represent the empty, open mind that has reached enlightenment. The fauvists, on the other hand, used a riot of colors in vibrant, jarring juxtaposition.

In each case, the color (or lack thereof) merely enhanced or commented on the representational efforts of the rest of the composition. Every work we find still relied on line, form, movement, space, perspective, and all the usual tools of a painter to represent a particular thing or idea.

Rothko and the rest of the color field artists broke away from every one of these conventions by removing more and more until only color remained. The typical color field composition has few if any lines or forms, and what forms there are – the boundaries between the different colors – are typically blurred and incoherent. This total lack of form permits no interpretation by the viewer of the painting as being “of something”.

And yet when the literature around color field art was being written in the 1970's and 1980's, we consistently see that both erudite critics and casual observers spoke of Rothko's work in terms of representations beyond color itself. The painting *No. 61 (Rust and Blue)* is simply three horizontal rectangles of color – rust red, light blue, and navy blue. The colors are mottled, a result of the staining technique used. The boundaries between the rectangles are blurred and inconsistent. No painting could more clearly be about the colors themselves. However, in instance after instance, observers wrote of *No. 61* as evoking the ocean at sunset, the haze over a lake, the pre-dawn light seen through closed eyelids, etc.

Perhaps pure color is an ungraspable phantom. Even when presented in its purest form, it seems that most observers are unable to accept the work as it is, and ever seek for representation.

1. The author seems to think that when viewing a painting, seeing the painting as representing something is:

- A. an artifact that most avoid when seeing the painting as an example of pure color.
- B. a nearly inevitable part of interpreting the painting, whether the interpreter is a casual observer or an art scholar.
- C. a result of the kind of painting first popularized by Rothko.
- D. a fashion that went out of style in art critic circles after the runaway success of the color field painters.

2. The author's main point in the passage discussion is that:

- A. abstract painters such as Buddhist monks painting their ensō still retained form and thus representation.
- B. it is impossible for any human to view a painting solely as a representation of pure color, but instead we constantly look to interpret paintings as representations of things.
- C. color field artists created a new type of painting that was, for the first time ever, able to wholly leave behind the elements of representation and focus on color itself as the subject of the painting.
- D. the history of art is full of various uses of color, from mere emphasis to the total absence of color.

3. The author's discussion about painters prior to Rothko using color to comment on representation indicates that before Rothko:

- A. painters had not attempted to use color as the sole subject of painting.
- B. the aesthetic value of black and white abstract paintings was in doubt.
- C. artists were afraid to surrender representation entirely and thus used line, form, and color to make paintings that were "of something".
- D. color itself could be the subject of representation.

4. The passage assertion that a single artist can come to represent an entire movement of art in the minds of the public is:

- A. only mentioned in passing and assumed to be true, with the author providing no support.
- B. patently absurd because it cannot, in principle, be empirically investigated.
- C. supported by specific examples of the phenomenon.
- D. an axiomatic statement upon which the main thesis of the passage relies.

5. The passage suggests that Rothko became the foremost example of a color field artist because he:

- A. more than other prior or contemporary artists, was able to pursue the effort of non-representation to its logical conclusion leaving only color itself as the subject of painting.
- B. was the artist most successfully able to meld traditional art techniques of color oil painting with the new artistic notion of removing all elements of representation.
- C. took the notion of representing color itself to the highest possible level, tying color into traditional notions of form.
- D. was by far the most commercially successful and his art was depicted in a number of important cultural contexts.

6. Suppose a museum curator discovers a heretofore unknown collection of paintings by a German artist working in the early 19th century and the paintings are little more than large blobs of color, with no discernable objects or forms. This discovery would most weaken the author's assertion that:

- A. Rothko had set aside previous artistic habits and history when creating his color field works.
- B. Rothko and the color field artists working in the mid- 20th century were the first to totally divorce color and painting from representation of objects.
- C. color field art is continually misinterpreted since viewers seem to insist on seeing the color blobs as being paintings "of something".
- D. audiences prior to those present in mid-20th century America were unwilling and unable to embrace color field art as an accepted art movement.

7. An experimental filmmaker in the 1980's began creating compositions that entirely removed any traces of the plot or narrative structure that had, up to that point, always been present in both film and television and created works that were little more than meditations on movement and form. The author would likely assert that such films would garner which of the following reactions from audiences?

- A. Most observers would express strong distaste for the work.
- B. Audiences would speak about the progression of the various images in terms of narrative structures that were familiar to them from earlier film and television.
- C. Such works would be well-received in film studies circles but would never achieve any large commercial success.
- D. Nearly all audience members would mistakenly draw parallels between this work and the works of famous color field painters such as Rothko.

Questions?

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FULL LENGTH I

Passage 6 (Questions 31-34) Periodic Table

Terpenes have been found to be essential building blocks of complex hormones and molecules, pigments, sterols and even vitamins. Terpenes also play an incredibly important role by providing protection from bacteria and fungus. The basic structure of terpenes is repeating isoprene units (C_5H_8)_n and they are grouped according to the number of repeating isoprene units. Monoterpenes contain 2 isoprene units; examples include menthol and pinene. Vitamin A₁, a diterpene, contains 4 isoprene units. Research has revealed the Isoprene Rule, which states: adjacent isoprene units in terpenes are linked preferentially between carbon atoms located at opposite ends of the isoprene structural subunit. Head-to-head and tail-to-tail connections are rare exceptions to this rule.

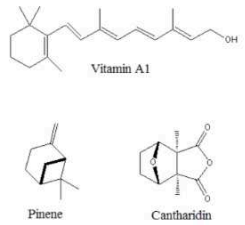
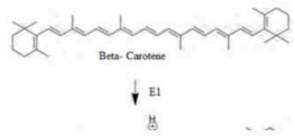


Figure 1 Examples of monoterpenes and diterpenes

In human metabolism, β -Carotene A, a 40-Carbon terpene (Compound 1, Figure 2), is utilized as a precursor for the synthesis of vitamin A₁. Retinal (Figure 2) is a key intermediate in vitamin A₁ biosynthesis. The biosynthetic pathway by which retinal is synthesized *in vivo* from β -Carotene has been identified by using specifically ^{18}O labeled O₂ and ^{18}O labeled H₂O.



Previous Mark Review Next

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Passage 6 (Questions 31-34) Periodic Table

Question 34

A researcher seeks to monitor the conversion of retinal to retinol using infrared spectroscopy. Which of the following signals will indicate the reaction is complete?

A. Noting the disappearance of peaks in the 3200-3500 cm^{-1} region

B. Noting the appearance of a peak in the 3200-3500 cm^{-1} region

C. Noting the disappearance of peak in the 1580-1640 cm^{-1} region

D. Noting the appearance of a peak in the 1700-1750 cm^{-1} region

Key terms: terpenes, isoprene unit formula, mono/di terpene, isoprene rule

Contrast: the favored isoprene links are head-to-tail, though exceptions do occur

Cause and effect: repeated isoprene units can combine to form several biologically important molecules

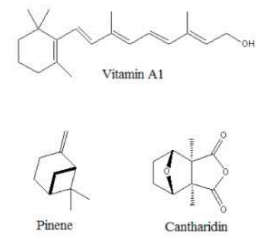


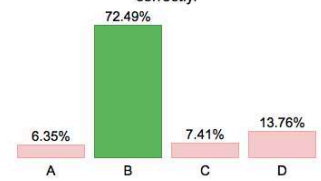
Figure 1 Examples of monoterpenes and diterpenes

Figure 1 shows us that the various terpene molecules made up of repeating isoprene units

In human metabolism, β -Carotene A, a 40-Carbon terpene (Compound 1, Figure 2), is utilized as a precursor for the synthesis of vitamin A₁. Retinal (Figure 2) is a key intermediate in vitamin A₁ biosynthesis. The biosynthetic pathway by which retinal is synthesized *in vivo* from β -Carotene has been identified by using specifically ^{18}O labeled O₂ and ^{18}O labeled H₂O.

72.49% of students answered this question correctly.

Your answer was incorrect



Answer Explanation:

- Difficulty: 2 Medium
- Reasoning Skill: 2 Scientific Reasoning and Problem Solving
- Concept Category: 4D Light and Sound

B is correct. Retinol differs from retinal in that it contains -OH groups, but does not contain a carboxyl group (C=O). The carbonyl stretching frequency falls in the region 1700-1750 cm^{-1} , whereas the O-H stretching frequency is expected to fall in the region 3200-3500 cm^{-1} .

A: This would indicate a lack of OH groups, which is a characteristic of retinal, not retinol.

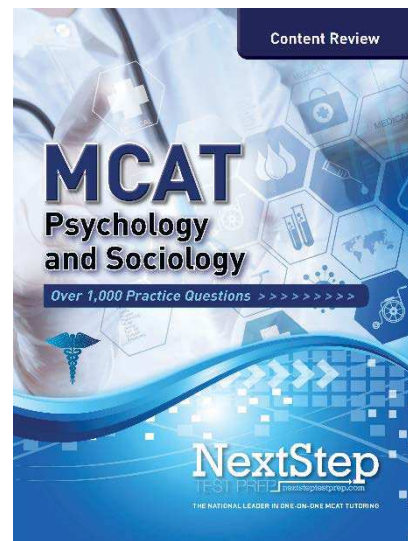
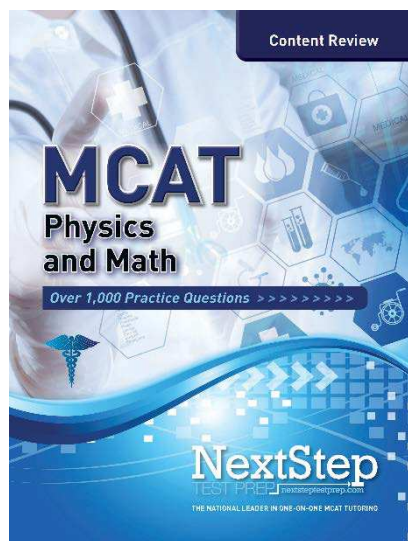
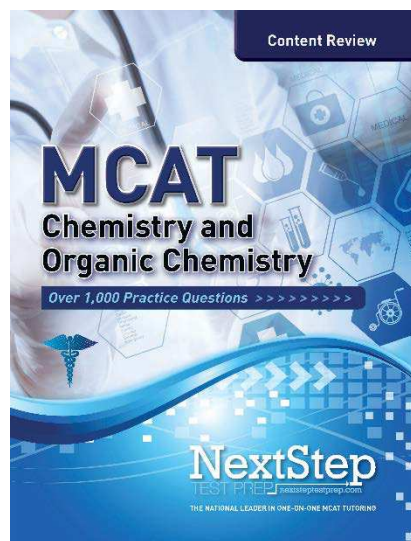
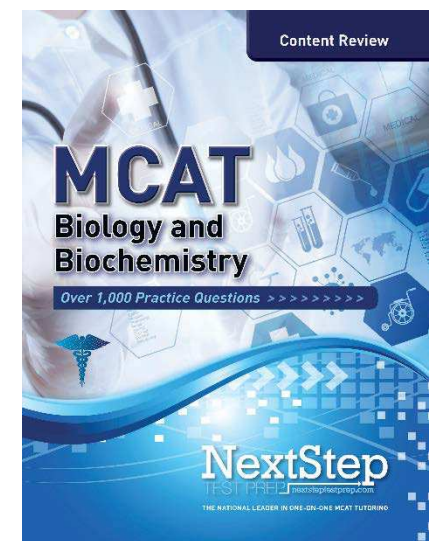
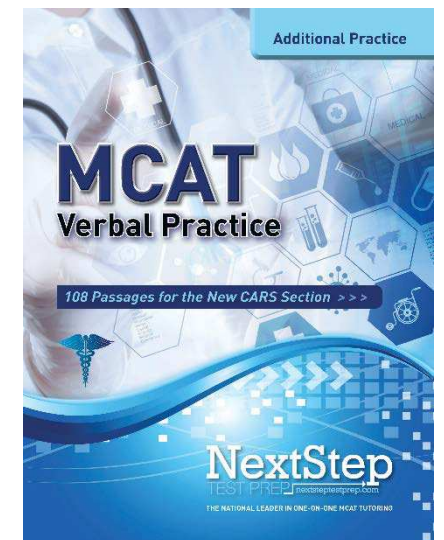
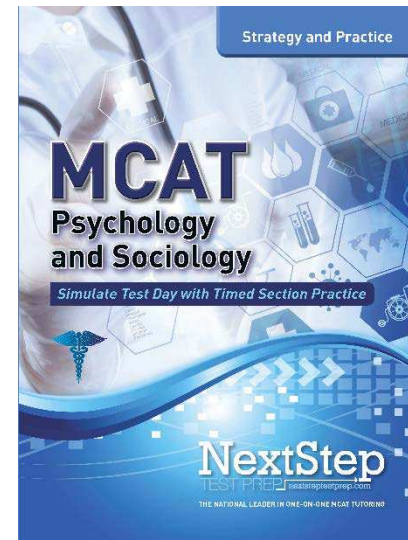
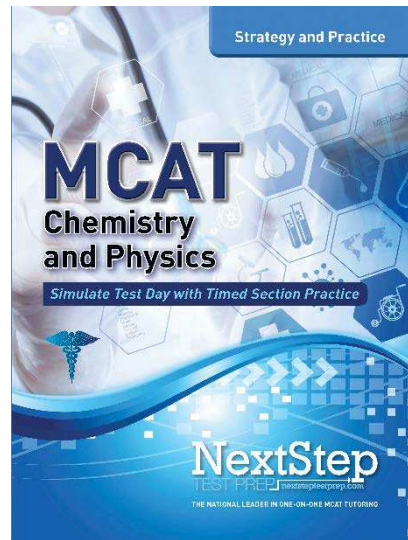
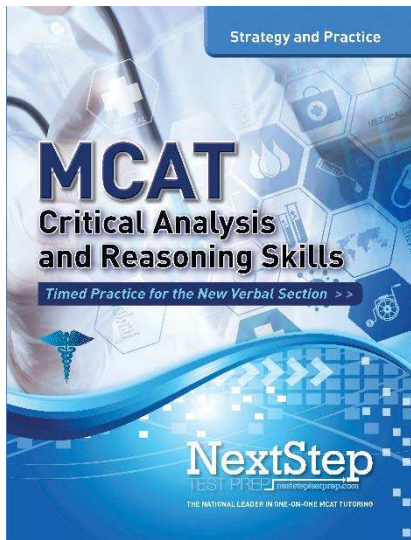
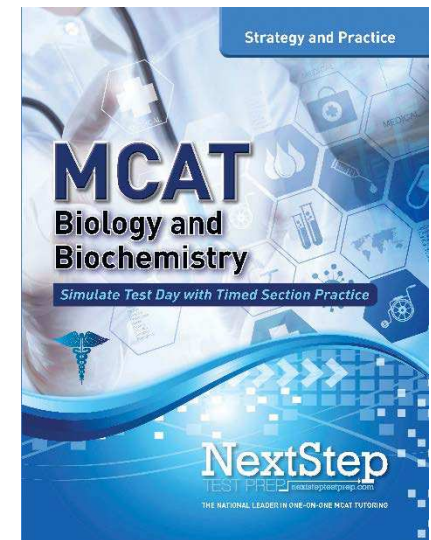
C: This peak is indicative of C=C groups, which both molecules have and cannot be used to determine when retinal has been converted.

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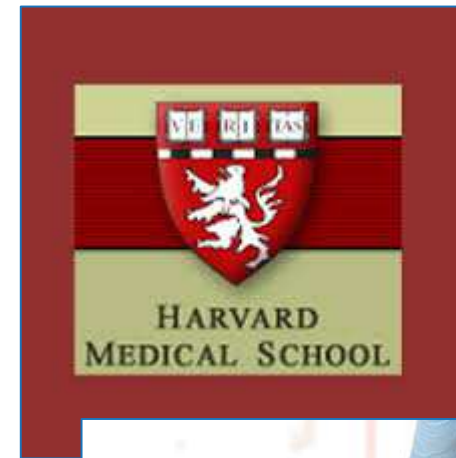
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	11:45 – 1:15p Lunch	12p – 1:30p Lunch
	1:15p – 2:30p Session 2–Double Slot for Writing or Connecting with Brands	1:30p – 2:45p Change the World–Revolution
4p – 5p Big Toy Book Party	2:45p – 4p Session 3–2nd half writing OR Experience OR Expo/rest/recharge	3p – 4:15p Session 3–Own Your Beauty OR Online Community
	4p – 4:45p Afternoon break	4:15p – 5p Afternoon break
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		10p – 11:30p Cheeseburger





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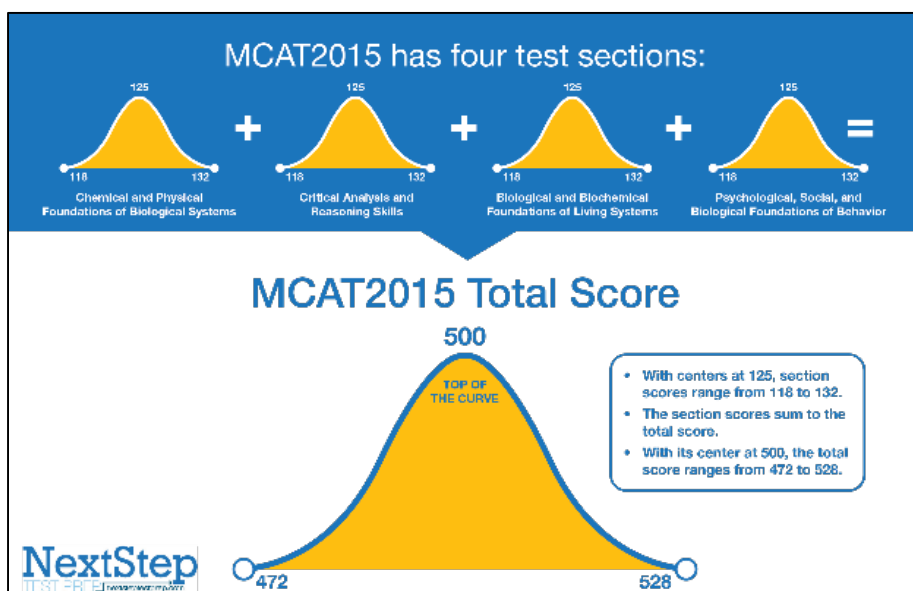
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