



MCAT CARS Practice Passages & Review



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Another shiver of fear swept across Britain when Jack Cunningham, the minister of agriculture, announced plans for a ban on the sale of beef bones because of the possibility that they could pass mad-cow disease (BSE) to humans. Within hours of the news, supermarkets around the country had begun to take oxtail, T-bone steak and beef ribs off their shelves.

The announcement added to the woes of Britain's already mutinous beef-farmers. Even before Mr. Cunningham made his unexpected announcement, Welsh farmers, hit by falling beef prices and the continuing European Union ban on British beef exports, had been blockading ports and hurling imports of Irish beef into the sea. But for the most British people, the future of beef prices is the least of their worries. The government announcement has raised new questions about the safety of beef, and raised again the nightmare scenario of a wide-scale epidemic of new variant Creutzfeldt-Jakob disease (NVCJD), the human equivalent of BSE. Obvious questions are again being asked. Is any beef safe to eat? Is milk safe to drink? And how much do we now know about the chances of an epidemic of NVCJD?

The difficulties in answering these questions are threefold. Prion diseases — comprising BSE, all forms of CJD, scrapie (the sheep equivalent) and some others — are among the most mysterious diseases known to science. It is not even clear what causes them, let alone anything else. As there is still no test to tell whether animals are infected, experiments to find out whether or not beef is safe takes ages. The best experimental model is the mouse, but infected mice may take two years to show signs and symptoms of prion diseases. NVCJD is so new that it is impossible to make any reliable predications about the potential for an epidemic. Crucial variables for such forecasts, like the average time from infection to disease in people, or the variation around that average, simply cannot be determined yet.

John Major's government first announced the possible connection between BSE and NVCJD in March last year. In Britain 22 people are now known to have died from the new disease, and another handful are sick. Meanwhile, a steady drip of experimental results has diminished the uncertainty over whether or not the two diseases are the same. Most recently, experiments on mice that compared different kinds of prion diseases showed not only that NVCJD and BSE had the same incubation time but the same pathology in the brain — and that this was different from either scrapie or other forms of CJD.

But unfortunately, hardly anything is known about how BSE might be transmitted to people. The government's ban on bones is a response to experiments that suggest that bone marrow and some types of nerve tissue besides the brain and spinal cord can cause disease in mice. But since the dose required to cause disease in people is unknown, it is impossible to know how large any risk might be.

Nonetheless, at the same time that he announced the ban, Mr. Cunningham insisted that other cuts of British beef are still safe to eat. In his favor, the latest estimates suggest that the epidemic of BSE in cattle is dying out, and that British herds may be free of the disease by early in the next century. Thus, in a painful irony, what risk there is from beef products may be lower now than it has been at any point in the past ten years. But this will do nothing to reassure frightened consumers, nor the European countries keen to maintain their ban on exports.



- 1) Which of the following, if true, would most weaken the “best experimental model” (line 36) presented in the passage?
 - A. some mice showed signs and symptoms of prion diseases within several months of exposure
 - B. mice who have not yet shown symptoms of prion diseases still offer a plethora of vital information regarding the incubation periods of these diseases
 - C. mice and humans differ greatly in their symptomatic reactions to the forms of CJD studied thus far
 - D. current prediction regarding the potential dangers of prion diseases are tenuous and unreliable

- 2) Which of the following pieces of information would most likely aid researches in predicting a potential NVCJD epidemic?
 - A. how scrapie is transmitted from one species to another
 - B. the variations in average incubation time in the brain
 - C. how effective the human immune system is in fighting some prion diseases
 - D. the average time from infections to disease

- 3) According to the passage why does Jack Cunningham's announcement present a “painful irony” (line 73)?
 - A. although certain cuts of beef have been banned, recent estimates suggest that the risk of disease ridden beef may be lower now than it has in the last ten years
 - B. regardless of current estimates of the risk of disease infested beef, consumer skepticism of the safety of beef will most likely persist
 - C. Cunningham is needlessly frightening the public and is carelessly damaging the beef industry
 - D. the ban of only certain cuts of beef is based on the tenuous findings of the transmission of BSE through bone marrow

- 4) The passage implies that Welsh farmers “had been blockading ports and hurling imports of Irish beef into the sea” (lines 14-15) as
 - A. a reaction to the government’s recent announcement regarding the ban of certain cuts of beef
 - B. a means of intercepting possibly infected beef before reaching the consumer
 - C. an effort to underscore the impacts of the ban on the Irish beef-farmers
 - D. a rebellious reaction to falling prices and bans on British beef

- 5) The main point of the passage is to
 - A. a richness discuss some of the ramifications of prion diseases on the British beef industry
 - B. present some recent developments surrounding NVCJD
 - C. demonstrate the effectiveness of bans that limit the impetus of a potential epidemic
 - D. outline the difficulties in studying BSE

- 6) According to the passage, how have researchers differentiated BSE from scrapie?
 - A. by examining nerve tissue other than the brain and spinal cord
 - B. by studying incubation time and pathology in the brain
 - C. by comparing the average time from infection to disease
 - D. by developing new tests to determine how these diseases are transmitted

- 7) The author mentions “a steady drip of experimental results” (lines 49-50) to indicate that these results yield
 - A. definitive answers to the once mystery connection between BSE and NVCJD
 - B. persistent theoretical incongruities between the various prion diseases
 - C. small bits of information on a consistent basis
 - D. inconclusive evidence in most cases



Few men exhibit greater diversity, or, if we may so express it, greater antithesis of character, than the native warrior of North America. In war, he is daring, boastful, cunning, ruthless, self-denying, and self-devoted; in peace, just, generous, hospitable, revengeful, superstitious, modest, and commonly chaste. These are qualities, it is true, which do not distinguish all alike; but they are so far the predominating traits of these remarkable people as to be characteristic.

It is generally believed that the Aborigines of the American continent have an Asiatic origin. There are many physical as well as moral facts which corroborate this opinion, and some few that would seem to weigh against it. The color of the Indian, the writer believes, is peculiar to himself, and while his cheek-bones have a very striking indication of a Tartar origin, his eyes have not. Climate may have had great influence on the former, but it is difficult to see how it can have produced the substantial difference which exists in the latter. The imagery of the Indian, both in his poetry and in his oratory, is oriental; chastened, and perhaps improved, by the limited range of his practical knowledge. He draws his metaphors from the clouds, the seasons, the birds, the beasts, and the vegetable world. In this, perhaps he does no more than any other energetic and imaginative race would do, being compelled to set bounds to fancy by experience; but the North American Indian clothes his ideas in a dress which is different from that of the African, and is oriental in itself. His language has the richness and sententious fullness of the Chinese. He will express a phrase in a word, and he will qualify the meaning of an entire sentence by a syllable; he will even convey different significations by the simplest inflections of the voice.

Philologists have said that there are but two or three languages, properly speaking, among all the numerous tribes which formerly occupied the country that now composes in the United States. They ascribe the known difficulty one people have to understand another to corruptions

and dialects. The writer remembers to have been present at an interview between two chiefs of the Great Prairies west of the Mississippi, and when an interpreter was in attendance who spoke both their languages. The warriors appeared to be on the most friendly terms, and seemingly conversed much together; yet, according to the account of the interpreter, each was absolutely ignorant of what the other said. They were of hostile tribes, brought together by the influence of the American government; and it is worthy of remark, that a common policy led them both to adopt the same subject. They mutually exhorted each other to be of us in the event of the chances of war throwing either of the parties into the hands of his enemies. Whatever may be the truth, as respects the root and the genius of the Indian tongues, it is quite certain they are now so distant in their words as to possess most of the disadvantages of strange languages; hence much of the embarrassment that has arisen in learning their histories, and most of the uncertainty which exists in their traditions.



- 1) The main point of this passage is to
 - A. shed some light on the paradoxical characteristics of Native Americans
 - B. present evidence that links Native Americans with the far East
 - C. discuss variations in language as is evident from a particular example
 - D. describe the diversity of the Native Americans

- 2) The author's tone regarding the indigenous people of North America is one of
 - A. sorrow
 - B. respect
 - C. longing
 - D. derision

- 3) Why does the author mention the interview between the two chiefs?
 - A. to demonstrate the concern the American government had for the warring factions of Native Americans
 - B. to illustrate the effectiveness with which the U.S. government arbitrated
 - C. to qualify an earlier assertion regarding differences in language
 - D. to point out the hostile relations between two tribes of the Great Prairies

- 4) According to the passage the uncertainty regarding American Indian history and tradition is most likely attributed to
 - A. American disinterest in the well-being of indigenous people
 - B. a lack of awareness of the differences in language from tribe to tribe
 - C. the different possible origins of the Native Americans
 - D. a lack of historical documentation regarding the Native American culture

- 5) According to the author, the American Indian shares all of the following characteristics with his presumed predecessors of the East EXCEPT:
 - A. a richness of language
 - B. cheek-bones
 - C. poetic imagery
 - D. two or three languages within a distinct region

- 6) It can be inferred from the passage that the imagery used by the American Indian was
 - A. drawn from his immediate surroundings
 - B. specific to his limited range of experience
 - C. limited to his oriental influences
 - D. expressed in very few syllables

- 7) The passage implies that in the Chinese language
 - A. different meanings are associated with different inflections
 - B. is the basis for all Native American tongues
 - C. makes use of many metaphors
 - D. developed in a similar fashion to Native American languages

- 8) Which of the following, if true, would most strengthen the notion that American Indians originated in Eastern Asia?
 - A. the Sioux word for fly is very similar to the Chinese word for bird
 - B. archaeologists have discovered dwellings in Central America that predate the earliest known dealings found in Asia
 - C. the variations in language from tribe to tribe is similar to regional variations in language throughout China
 - D. the characteristic height and hair color of American Indians are very similar to that of early Mongolians



The Net can be used to distribute new Net tools in the form of computer programming code, as well as communications and information services, which means the Net is inherently a bootstrapping medium that constantly changes itself as people discover and invent new tools, and then use the Net to distribute them. When the Net upgrades its own software, the Net is used to distribute the upgrade.

Among the original hackers at MIT the ones who helped invent time-sharing, the hacker ethic was that computer tools out to be free. The first personal-computer makers were outraged when William Gates, now the richest man in America, started selling BASIC, which PC hobbyists had always passed around for free. The software industry exists now and Microsoft is bigger than General Motors, but the Net continues to grow because of intellectual property that skilled programmers have given to the Net community. Again and again, programmers have created and given to the Net powerful tools that have changed the nature of the Net and expanded its availability.

It makes sense, even if you plan to profit from a communications medium later, to give away access to the medium in the beginning, when you are trying to build a critical mass. The people who built CMC systems wanted to have a large population of people to communicate with; the value they sought was not the value of metering access to the community, but in the intellectual value, the collective goods, that a community could create together. The tradition of free bootstrapping software is alive and well. Now, tools that act as personal information servants to shield users from the complexities of the Net are becoming available, also free of charge.

When you being talking about using you desktop computer to download the actual text of books stored in the Library of Congress, you come up against two barriers. First, only a small fraction

machine-readable form, and the process of digitization necessary to make the information available online is no longer prohibitively expensive but remains time-consuming. The Library of Congress is growing far faster than it can be digitized by present-day technology. Clearly, until some breakthrough makes digitization easier, people will have to choose which material is valuable enough to convert to electronic form; even with these obstacles, the amount of data converted from analog to digital form every day is staggering.

The other barrier to a Net that contains all the text and photos and sounds in the Library of Congress is a less technical and more social issue: intellectual property. A lot of the best books, photos, lyrics, articles, and videos are owned by somebody. How are royalties to be determined and collected in a world where you can copy anything with a keystroke and transfer a library around the world in a minute? Ted Nelson, who coined the term hypertext, first dreamed up a scheme in the 1960s, looking forward to the day when this social problem lurking at the heart of computer technology would grow large. Nelson's scheme, called Xanadu, involves a database of all the literature in the world, including anything anybody wants to contribute; readers would be able to have access to documents, and the system would automatically pay from their accounts a tiny amount of money to the original author. The Xanadu project, long notorious as the world's most ancient software project that has yet to produce a public product, is still alive. And the problem still exists.



- 1) According to the passage, what is the Xanadu project intended to accomplish?
 - A. to resolve some of the social problems that are inherent in using computer technology
 - B. to preserve intellectual property in an easily accessible medium
 - C. to catalogue all the world's literature
 - D. to ensure that access to any literature results in the proper distribution of royalties

- 2) The passage implies that "tools that act as personal information servants to shield users from the complexities of the Net" (lines 36-38) are being offered free of charge because
 - A. these tools can be used by many internet users who will pay for the intellectual goods the Net has to offer
 - B. traditionally the hacker ethic was that computer tools ought to be free
 - C. such tools are so easily copied and distributed anyway
 - D. it is in everyone's best interest to distribute standardized communication tools to all internet users

- 3) Why does the author mention Xanadu?
 - A. to present an effective solution to one of the problems plaguing the access to documents over the internet
 - B. to underscore the importance of Ted Nelson in the development of the internet
 - C. to demonstrate that regardless of recent efforts the difficulties regarding payment of royalties for text accessed on the internet persist
 - D. to show that archaic software products have little public demand today

- 4) According to the passage, what is the main obstacle in digitizing the content of the Library of Congress in its entirety?
 - A. the digitization process remains prohibitively expensive
 - B. the allocation of royalties as the information is accessed over the internet
 - C. the library is expanding faster than the information can be converted to a digital format
 - D. only a small number of documents are already in a machine-readable form

- 5) "The Net is inherently a bootstrapping medium" (lines 4-5) implies that the internet
 - A. can communicate virtually anything humans can perceive
 - B. will likely be the best medium for accessing intellectual property
 - C. uses a form of computer programming code that can distribute a wide variety of tools
 - D. propagates itself through the ingenuity of its users

- 6) With which of the following statements regarding the development of the internet would the author most likely agree?
 - A. many of the tools that have expanded the availability of the Net were offered free of charge
 - B. by not offering internet tools for free, William Gates is impeding the growth of the Net
 - C. although the Net can easily distribute tools that will upgrade the internet itself, there is a relative paucity of such tools
 - D. certain limitations will preclude the Net from ever incorporating the Library of Congress in its entirety

- 7) The main point of the passage is to
 - A. resolve specific problems plaguing the judicious use of the internet
 - B. discuss both the facility with which the internet can self-update and the difficulty in offering certain services
 - C. present the flaws in a n outdated software proposal
 - D. developed in a similar fashion to Native American languages

- 8) The author's tone regarding the future implementation of Ted Nelson's project is one of
 - A. anticipation
 - B. skepticism
 - C. enthusiasm
 - D. hope



“Pitch” originated as a musical term and has become a psychological term used to designate a perceived quality of sound.

In music, the pitch of musical sounds was perceived long before the physical basis for pitch was understood. One of the great musical (and psychological) discoveries is that for periodic musical sounds, such as those produced by the organ, strings, winds, and the human voice, pitch is tied unalterably to the periodicity or frequency with which the waveform of the sound repeats.

Periodic musical sounds are made up of many harmonically related frequency components, or partials, of frequencies f_0 , $2f_0$, $3f_0$, $4f_0$, and so forth. Such sounds have many perceived qualities besides pitch. One of these other qualities is shrillness, or brightness. A sound with intense high-low-frequency partials is bright, or shrill. A sound in which low-frequency partials predominate is not bright, but dull.

When you listen to periodic musical sounds on a hi-fi system, you can change the brightness by turning the tone control. But this doesn’t change the pitch. The brightness depends on the relative intensities of partials of various frequencies. Turning the tone control can change the relations of the partials, but won’t change the periodicity of the sound, which is the same as the fundamental, the frequency of the first particle, f_0 .

Sounds that are not periodic musical sounds are not as clear and distinguishable in pitch and brightness, but some of them can be granted pitch by a sort of musical courtesy. Among these are sine waves (pure tones), the tones of bells, the clucking sound that we can make with the tongue and the roof of the mouth, the somewhat related sound of the Jew’s harp, and the sound of a band of nose.

Sine waves are peculiar in that they consist of a single harmonic partial. The sense of pitch that they give is not as certain as that of tother periodic sounds; it can differ a little with intensity,

and between the two ears. For other periodic sounds, the sense of the octave is very strong, for the partials of a sound a' (that is, an octave above a) are all present in sound a . The sense of the octave is not strong with sine waves. Furthermore, because sine waves contain only one frequency component, their brightness is tied inextricably to their pitch.

Musically trained people react to sine waves and their pitches much as they react to periodic musical sounds. Naïve people may react differently. By asking naïve subjects to relate frequency changes of sine waves to a doubling pitch, psychologists found a *mel scale* of pitch (for sine waves). In the mel scale there is no simple relations between frequency and pitch; nothing like the octave shows up. I think the mel scale is a scale of brightness, not of pitch. It might be possible to check this by using musical sounds whose brightness and pitch could be varied independently.

The sounds of orchestral bells and of tuned bells are not periodic, and these sounds do not have all the properties of periodic musical sounds. One can play tunes with bells, and the pitches that are assigned to bells can be explained largely in terms of the frequencies of prominent, almost-harmonic partials.

Clucking sounds and shushing sounds (bands of noise) have a brightness, but no periodicity. Oddly, we can play recognizable tune with these sounds, even though they cannot be heard as combing into chords or harmony. Apparently, in the absence of a clear pitch, brightness can suggest pitch. This seems natural. When we play a scale on a musical instrument, the brightness increases as we go up the scale. But the “pitch” of clucks or bands of noise is only a suggestion of pitch. It depends on the frequency at which the brightness spectrum peaks, and this (and therefore the “pitch”) changes when we turn the tone control.



- 1) According to the passage, partials are
 - A. dependent on the brightness of relative frequencies
 - B. are always an octave above a given sine wave
 - C. associated with brightness but not pitch of a single sine wave
 - D. to ensure that access to any literature results in the proper distribution of royalties

- 2) The passage states that the author's opinion regarding the mel scale could be verified
 - A. by juxtaposing results attained from two different groups, one musically trained and the other naïve
 - B. if experiments were conducted in which brightness was altered but pitch remained constant
 - C. through the use of musical sounds in which pitch and brightness are controlled independently
 - D. if psychologists and musicians were to work together

- 3) The author's main point is to
 - A. describe how brightness can effect one's perception of pitch
 - B. discuss some qualities of pitch and brightness
 - C. advocate his opinion regarding the mel scale
 - D. to show that archaic software products have little public demand today

- 4) The author implies that producing recognizable tunes with non-periodic sounds is odd because
 - A. these sounds cannot combine to form certain harmonies
 - B. such sounds lack partials and clear sense of pitch
 - C. advocate his opinion regarding the mel scale
 - D. only a small number of documents are already in a machine-readable form

- 5) Why does the author make reference to a scale being played on a musical instrument?
 - A. to help illustrate the inseparable nature of pitch and brightness
 - B. to demonstrate the training a musician receives which alters his auditory perception of sine waves
 - C. to show a practical instance in which the brightness spectrum peaks
 - D. to clarify the difference between periodic and non-periodic sounds

- 6) The author implies that the brightness of a given sound
 - A. is measured with respect to the predominance of low-frequency partials
 - B. is heard by the trained ear as a doubling of pitch
 - C. is determined by the intensity of different frequency partials
 - D. was not clearly understood by psychologists prior to the development of the mel scale

- 7) It can be inferred from the passage that tuned bells
 - A. create the same resonant sound as orchestral bells
 - B. are seldom used to express melodic ideas
 - C. have little use in a modern day orchestra
 - D. are not ideal for combinations that form chorus or harmony

- 8) Which of the following, if true, would most weaken the possibility of verifying the author's opinion regarding the mel scale as described in the passage?
 - A. brightness and pitch are so intrinsically linked that there is no possibility of isolating each characteristic and controlling them individually
 - B. different subjects react to the mel scale in very different ways
 - C. the mel scale can be reproduced by manipulation solely the tone control on a hi-fi system
 - D. subjects who cannot distinguish between the different degrees of the mel scale have all been diagnosed as tone deaf



Among the branches of philosophy, I had, when younger, studied logic, and among those of mathematics, geometrical analysis and algebra; three arts or sciences which should have been able to contribute something to my design. But in examining them I noticed that as far as logic was concerned, its syllogisms and most of its other methods serve rather to explain to another what one already knows, or even, as in the art of Lully, to speak freely and without judgment of what one does not know, a than to learn new things. Although it does contain many true and good precepts, they are interspersed among so many others that are harmful or superfluous that it is almost as difficult to separate them as to bring forth a Diana or a Minerva from a block of virgin marble. Then, as far as the analysis of the Greeks and the algebra of the moderns is concerned, besides the fact that they deal with abstractions and speculation which appear to have no utility, the first is always so limited to the consideration of figures that it connote exercise the understanding without greatly fatiguing the imagination, and the last is so limited to certain rules and certain numbers that it has become a confused and obscure art which perplexes the mind instead of a science which educates it. In consequence I thought that some other method must be found to combine the advantages of these three and to escape their faults. Finally, just as the multitude of laws frequently furnishes an excuse for vice, and a state is much better governed with a few laws which are strictly adhered to, so I thought that instead of the gray number of precepts of which logic is composed, I would have enough with the four following ones, provided that I made a firm and unalterable resolution not to violate them even in a single instance.

The first rule was never to accept anything as true unless I recognized it to be certainly and evidently such: that is, carefully to avoid all precipitation and prejudgement, and to include nothing in my conclusions unless it presented itself so clearly and distinctly to my mind that there was no reason to doubt it.

The second was to divide each of the difficulties which I encountered into as many parts as possible, and as might be require for an easier solution.

The third was to think in an orderly fashion when concerned wight he search for truth, beginning with the things which were simplest and easiest to understand, and gradually and by degrees reaching to ward more complex knowledge, even treating, as though ordered, materials which were not necessarily so.

The last was both in the process of searching and in reviewing when in difficulty, always to make enumerations so complete, and reviews so general, that I would be certain that nothing was omitted.

Those long chains of reasoning , so simple and easy, which enable the geometricians to reach the most difficult demonstration, had made me wonder whether all things knowable to me might not fall into a similar logical sequence. If os, we need only refrain from accepting as true that which is not true, and carefully follow the oder necessary to deduce each one from the others, and there cannot be any propositions so abstruse that we cannot prove them, or so recondite that we cannot discover them.

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- 1) The author's main point is
 - A. to delineate the shortcomings of certain branches of philosophy and mathematics
 - B. to present criteria that would help differentiate truth from that which is not true
 - C. to discuss the syllogisms and methods of logic
 - D. to offer a method of discerning truth as a reaction to the existing forms of reasoning

- 2) Why does the author mention bringing "forth a Diana or a Minerva from a block of virgin marble" (lines 16-17)?
 - A. to demonstrate how Greek analysis deals with abstractions and speculation
 - B. to parallel the author's method with that of the great sculptors of his time
 - C. to illustrate the difficulty in excising the unneeded and potentially virulent precepts that permeate logic and algebra
 - D. to show how the logical sequence of sculpture is superior to that of the sciences mentioned

- 3) The author considers "the algebra of the moderns" (line 18)
 - A. so restrained by specific rules and numbers that it ultimately confuses rather than instructs
 - B. governed by too many laws
 - C. limited by the consideration of figures which undermine the creative endeavors of the mind
 - D. a topic that shares a logical approach similar to that of sculpture

- 4) It can be inferred from the passage that the author considers judgement
 - A. an unnecessary aspect of traditional logic
 - B. an obstacle that clouds one's ability to recognize that which is true
 - C. synonymous with precipitations
 - D. only applicable to his method if there is no reason to doubt it

- 5) The author's first rule relies on which of the following assumptions?
 - A. recognizing something as certain and evident is part of a sound logical sequence
 - B. that which the mind perceives as "clear and distinct" is indeed always true
 - C. philosophers have never before approached logic with such a perspective
 - D. any and all foreknowledge of a given subject will only impede the acquisition of truth

- 6) According to the passage, a system with a multitude of rules
 - A. is used by most governing bodies throughout the world
 - B. cannot be strictly adhered to because of man's inherent vices
 - C. leave little room for interpretations
 - D. is less effective than one with few rules that are rigidly adhered to

- 7) The passage implies that if the author were to order the precepts of a given problem
 - A. the issues would emerge with greater clarity
 - B. the first precept would be the most evident, while the last would be the most obscure
 - C. the issue would be discussed third
 - D. the order must adhere both to the rule, and the natural order of the problem itself

- 8) According to the passage, the author's method
 - A. is based on the logical sequence of the geometrician
 - B. is similar to accepted methods of sculpture
 - C. is a reaction to the shortcomings of the traditional and accepted style of reasoning
 - D. can fatigue the imagination if used incorrectly