MT Scholarships Aptitude Test Questions

This test is for those who have been selected to the next stage in the 2021 edition of Michael Taiwo Graduate School Application Scholarships. You have exactly ONE HOUR to finish the two sections.

1. Type your Email, First Name, and Last Name exactly the way you did when filling the Application form.
2. It is OPTIONAL for you to "Sign in to Google" to Autosave your work. You can choose to sign in or ignore this prompt altogether.

Email *

arokeaugustine@gmail.com

First Name *

Augustine

Last Name *

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Quantitative Reasoning Questions

Remember to answer as many as you can. You can make your best guess or skip questions you don't know. There is no negative scoring.

✓   1. In a single line of people waiting to purchase tickets for a movie, there are currently 10 people behind Sandra. If 3 of the people who are currently in line ahead of Sandra purchase tickets and leave the line, and no one else leaves the line, there will be 8 people ahead of Sandra in line. How many people are in the line currently?

○ 21

○ 12

○ 18

◉ 22   ✓

○ 15

✗   2. When the decimal point of a certain positive decimal number is moved six places to the right, the resulting number is 9 times the reciprocal of the original number. What is the original number?

○ 0.0003

○ 0.3

○ 0.003

○ 3.3

◉ 0.009   ✗

Correct answer

◉ 0.003

✓ 3. If an investment of P dollars is made today and the value of the investment doubles every 7 years, what will be the value of the investment, in dollars, 28 years from today?

○ 81P

◉ 16P ✓

○ 161P

○ 8P

○ 4P

✓ 4. A car dealer received a shipment of cars, half of which were black, with the remainder consisting of equal numbers of blue, silver, and white cars. During the next month, 70 percent of the black cars, 80 percent of the blue cars, 30 percent of the silver cars, and 40 percent of the white cars were sold. What percent of the cars in the shipment were sold during that month?

○ 36%

○ 50%

○ 55%

○ 72%

◉ 60% ✓

✓ 5. In the xy-plane, a quadrilateral has vertices at (-1, 4), (7, 4), (7, -5), and (-1, -5). What is the perimeter of the quadrilateral?

○ 29

○ 30

○ 31

○ 32

◉ 34 ✓

✓ 6. At a club meeting, there are 10 more club members than nonmembers. The number of club members at the meeting is c. Quantity A: The total number of people at the meeting. Quantity B: 2c - 10

○ Quantity A is greater

○ Quantity B is greater

◉ The two quantities are equal ✓

○ The relationship cannot be determined from the information given

✓ 7. xy = 8 and x = y - 2. Quantity A: y. Quantity B: 0.

○ Quantity A is greater

○ Quantity B is greater

○ The two quantities are equal

◉ The relationship cannot be determined from the information given ✓

✓   8. The length of each side of a rectangle R is an integer, and the area of R is
    36. Quantity A: The number of possible values of the perimeter of R.
    Quantity B: 6

○   Quantity A is greater

◉   Quantity B is greater   ✓

○   The two quantities are equal

○   The relationship cannot be determined from the information given

✓   9. x, y, and z are the lengths of the sides of a triangle. Quantity A: x + y + z.
    Quantity B: 2z

◉   Quantity A is greater   ✓

○   Quantity B is greater

○   The two quantities are equal

○   The relationship cannot be determined from the information given

✓   10. Quantity A: (x + 4)(y + 3). Quantity B: (x + 3)(y + 4)

○   Quantity A is greater

○   Quantity B is greater

○   The two quantities are equal

◉   The relationship cannot be determined from the information given   ✓

✓ 11. S = {1, 2, 3, 4, 5, 6, 7, 8}. Quantity A: The number of 4-member subsets of S. Quantity B: The number of 5-member subsets of S

◉ Quantity A is greater ✓

○ Quantity B is greater

○ The two quantities are equal

○ The relationship cannot be determined from the information given

✓ 12. The greatest of the 21 positive integers in a certain list is 16. The median of the 21 integers is 10. What is the least possible average (arithmetic mean) of the 21 integers?

○ 4

○ 5

◉ 6 ✓

○ 7

○ 8

✓ 13. From 2011 to 2012, Jack's annual salary increased by 10 percent and Arnie's annual salary decreased by 5 percent. If their annual salaries were equal in 2012, then Arnie's annual salary in 2011 was what percent greater than Jack's annual salary in 2011? Give your answer to the nearest 0.1 percent.

○ 16.2

○ 17.9

◉ 15.8　　　　　　　　　　　　　　　　　　　　　　　　　　　　✓

○ 18.4

○ 19.1

✓ 14. x is an integer and 23 < x < 27. Quantity A: The median of the five integers 23, 24, 26, 27, and x. Quantity B: 25

○ Quantity A is greater

○ Quantity B is greater

○ The two quantities are equal

◉ The relationship cannot be determined from the information given　　✓

✓ 15. Quantity A: The length of a leg of an isosceles right triangle with area R.
   Quantity B: The length of a side of a square with area R.

   ⦿ Quantity A is greater   ✓

   ○ Quantity B is greater

   ○ The two quantities are equal

   ○ The relationship cannot be determined from the information given

✕ 16. The 5 letters in the list G, H, I, J, K are rearranged so that G is the 3rd
   letter in the list and H is not next to G. How many such rearrangements are
   there?

   ○ 60

   ○ 36

   ○ 24

   ○ 12

   ⦿ 6   ✕

   Correct answer

   ⦿ 12

✓ 17. The interior dimensions of a rectangular tank are as follows: length 110 cm, width 90 cm, and height 270 cm. The tank rests on level ground. Based on the assumption that the volume of water increases by 10 percent when it freezes, which of the following is closest to the the maximum height, in cm, to which the tank can be filled with water so that when the water freezes, the ice would not rise above the top of the tank?

○ 230

○ 235

○ 240

◉ 245 ✓

○ 250

✓ 18. (4x – 2y)(6x + 3y) = 18. Quantity A: (2x – y)(2x + y). Quantity B: 6

○ Quantity A is greater

◉ Quantity B is greater ✓

○ The two quantities are equal

○ The relationship cannot be determined from the information given

✓ 19. Quantity A: The number of two-digit positive integers for which the units digit is not equal to the tens digit. Quantity B: 80

- ⦿ Quantity A is greater ✓
- ◯ Quantity B is greater
- ◯ The two quantities are equal
- ◯ The relationship cannot be determined from the information given

✓ 20. R is a list of 15 consecutive integers, and T is a list of 21 consecutive integers. The median of the integers in list R is equal to the least integer in list T. If the two lists are combined into one list of 36 integers, how many different integers are on the combined list?

- ◯ 22
- ◯ 25
- ⦿ 28 ✓
- ◯ 31
- ◯ 34

Verbal Reasoning Questions

Remember to answer as many as you can. You can make your best guess or skip questions you don't know. There is no negative scoring.

Use this passage to answer questions 1 and 2. Supernovas in the Milky Way are the likeliest source for most of the cosmic rays reaching Earth. However, calculations show that supernovas cannot produce ultrahigh-energy cosmic rays (UHECRs), which have energy exceeding 10^18 electron volts. It would seem sensible to seek the source of these in the universe's most conspicuous energy factories: quasars and gamma-ray bursts billions of light-years away from Earth. But UHECRs tend to collide with photons of the cosmic microwave background - pervasive radiation that is a relic of the early universe. The odds favor a collision every 20 million light-years, each collision costing 20 percent of the cosmic ray's energy. Consequently, no cosmic ray traveling much beyond 100 million light-years can retain the energy observed in UHECRs.

✓ 1. Select ALL answer choices that apply. It can be inferred that the author of the passage would agree with which of the following about the origin of UHECRs that reach Earth?

☑ The origin is something other than supernovas in the Milky Way ✓

☑ The origin is most likely something other than very distant quasars or gamma-ray ✓ bursts

☑ The origin is most likely no more than a little over 100 million light-years away ✓ from Earth

✓ 2. In the context of the author's argument, the last sentence performs which of the following functions?

○ It explains a criterion that was employed earlier in the argument

○ It shows that an apparently plausible position is actually self-contradictory

◉ It is a conclusion drawn in the course of refuting a potential explanation   ✓

○ It overturns an assumption in which an opposition position depends

○ It states the main conclusion that the author is seeking to establish

Use this passage to answer questions 3, 4 and 5. The massive influx of women cyclists - making up at least a third of the total market - was perhaps the most striking and profound social consequence of the mid-1890s cycling boom. Although the new, improved bicycle had appealed immediately to a few privileged women, its impact would have been modest had it not attracted a greater cross section of the female population. It soon became apparent that many of these pioneer women bicyclists had not taken up the sport as an idle pastime. Rather, they saw cycling as a noble cause to be promoted among all women as a means to improve the general female condition. Not only would cycling encourage healthy outdoor exercise, they reasoned, it would also hasten long-overdue dress reform. To feminists, the bicycle affirmed nothing less than the dignity and equality of women.

✗ 3. Select ALL answer choices that apply. Which of the following statements about women cyclists is supported by the passage?

☐ The newly improved bicycle of the mid-1890s appealed mostly to women in a privileged position

☐ The great majority of women in the mid-1890s considered cycling an idle pastime

☑ Women bicyclists promoted cycling as a healthy form of outdoor exercise ✓

Correct answer

☑ The newly improved bicycle of the mid-1890s appealed mostly to women in a privileged position

☑ The great majority of women in the mid-1890s considered cycling an idle pastime

☑ Women bicyclists promoted cycling as a healthy form of outdoor exercise

✓ 4. Select ALL answer choices that apply. Which of the following does the passage suggest about pioneer women cyclists?

☑ They saw cycling as a means to promote the advancement of women ✓

☐ They argued that cycling would encourage women to get involved in a variety of noble causes

☑ They provided several reasons for a cross section of the female population to use the bicycle ✓

✓ 5. Which of the following best describes the function of the second sentence ("Although . . . population")?

○ It corrects a common misconception regarding the use of the bicycle in the mid-1890s

● It elaborates on a claim made in the previous sentence regarding a social consequence of the cycling boom ✓

○ It provides a context in which to understand the increased popularity of bicycle riding among privileged women

○ It explains why cycling attracted such a significant cross section of women

○ It describes the demographic characteristics of the consumer market for bicycles in the mid-1890s

Questions 6 is based on this passage. X-ray examination of a recently discovered painting - judged by some authorities to be a self-portrait by Vincent van Gogh - revealed an underimage of a woman's face. Either van Gogh or another painter covered the first painting with the portrait now seen on the surface of the canvas. Because of the face of the woman in the underimage also appears on canvases van Gogh is known to have painted, the surface painting must be an authentic self-portrait by van Gogh.

✓   6. The conclusion is properly drawn if which of the following is assumed?

○   If a canvas already bears a painted image produced by an artist, a second artist who uses the canvas to produce a new painting tends to be influenced by the style of the first artist

○   Many painted canvases that can be reliably attributed to van Gogh contain underimages of subjects that appear on at least one other canvas that van Gogh is known to have painted

◉   Any painted canvas incorrectly attributed to van Gogh would not contain an underimage of a subject that appears in authentic paintings by that artist   ✓

○   A painted canvas cannot be reliably attributed to an artist unless the authenticity of any underimage that painting might contain can be reliably attributed to the artist

○   A painted canvas cannot be reliably attributed to a particular artist unless a reliable x-ray examination of the painting is performed

For questions 7-9, select the option that logically completes the sentences.

✓   7. In searching for norms in the sense of authoritative standards of what ought to be, rather than in the sense of what is average and thus can be considered normal, normative ethics aims to ------.

○   predict

○   mitigate

○   question

◉   dictate   ✓

○   personalize

✓ 8. When she first came to France from Bulgaria, she was hardly the ------ student she later made herself out to be, since she had access to considerable family wealth

○ naïve

○ precocious

◉ impecunious ✓

○ ambitious

○ assiduous

✓ 9. Researchers have observed chimpanzees feigning injury in order to influence other members of the group, thus showing that the capacity to ------ is not uniquely human

○ cooperate

○ instruct

○ conspire

◉ dissemble ✓

○ dominate

For questions 10-16, select the TWO answer choices option that, when used to complete the sentence, fit the meaning of the sentence as a whole and produce completed sentences that are alike in meaning.

✓ 10. If researchers can determine exactly what is wrong with people who
suffer from this condition, they may be able to suggest drug therapies or
other treatments that could ------ the effects of the damage.

☑ mitigate   ✓

☐ exacerbate

☐ specify

☐ identify

☑ ameliorate   ✓

☐ stabilize

✓ 11. Some analysts worry about consumers' perception that the electronics
industry is always on the verge of major breakthroughs; that perception
could hurt the industry by making consumers reluctant to buy products
they believe will soon be ------

☐ incompatible

☐ devalued

☑ obsolete   ✓

☐ ubiquitous

☐ everywhere

☑ outmoded   ✓

✓ 12. After people began to make the transition from gathering food to producing food, human societies followed markedly ------ courses; some adopted herding, others took to tillage, and still others stuck to foraging

- ☑ divergent   ✓
- ☐ rural
- ☐ novel
- ☐ unfamiliar
- ☑ disparate   ✓
- ☐ quotidian

✓ 13. In the book "The Simple Soybean", the author is much less restrained in his enthusiasm for the bean's medical efficacy than he is in his technical writings, but he still cautions against treating soy as a ------

- ☐ staple
- ☐ supplement
- ☐ herald
- ☑ panacea   ✓
- ☑ cure-all   ✓
- ☐ harbinger

✓ 14. Parkin's characterization of the movement was neoscholastic is too ------ to be accepted without further investigation

☑ cursory   ✓

☐ detailed

☑ perfunctory   ✓

☐ biased

☐ self-evident

☐ complete

✓ 15. A recent study suggests that vitamin E supplements, despite widespread belief in their -------, are no better than sugar pills for delaying the onset of the degenerative disease

☐ potential

☐ misuse

☐ popularity

☑ efficacy   ✓

☐ prevalence

☑ usefulness   ✓

✓ 16. Despite her relaxed and flexible style, Ms. de la Fressange is ------
businesswoman who knows how to market her brand: herself

☐ a ruthless

☐ a creative

☑ a canny   ✓

☐ an industrious

☑ a shrewd   ✓

☐ an effective

For questions 17-18, select the option that logically completes the sentences.

✓ 17. By recognizing commonalities among all the major political parties and
by promoting a collaborative decision-making process, the prime minister
has made good on his promise to cultivate a leadership style that
emphasizes ------

○ growth

○ politics

○ ideology

◉ cooperation   ✓

○ differentiation

✓ 18. In his unexpurgated biography, Mark Twain commented freely on the
flaws and foibles of his country, making some observations so ------ that
his heirs and editors feared they would damage Twain's reputation if not
withheld

○ buoyant

◉ acerbic   ✓

○ premonitory

○ laudatory

○ temperate

Question 19 is based on this passage. Despite a dramatic increase in the
number of people riding bicycles for recreation in Parkville, a recent report by
the Parkville Department of Transportation shows that the number of
accidents involving bicycles has decreased for the third consecutive year

✓ 19. Which of the following, if true during the last three years, best reconciles the apparent discrepancy in the facts?

○ The Parkville Department of Recreation confiscated abandoned bicycles and sold them at auction to any interested Parkville residents

○ Increased automobile and bus traffic in Parkville had been the leading cause of the most recent increase in automobile accidents

○ Because of the local increase in the number of people bicycling for recreation, many out-of-town bicyclists ride in the Parkville area

◉ The Parkville Police Department enforced traffic rules for bicycle riders much more vigorously and began requiring recreational riders to pass a bicycle safety course   ✓

○ The Parkville Department of Transportation canceled a program that required all bicycles to be inspected and registered each year

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For question 20, select the option that logically completes the sentences.

✓ 20. The children's ------ natures were in sharp contrast to the even-tempered dispositions of their parents

◉ mercurial   ✓

○ blithe

○ phlegmatic

○ apathetic

○ cunning

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