

# ACT

## Sample Question Paper - 2023

Country: US | Duration: 2h 55m | Max Marks: 36 (composite) | Language: English

Negative Marking: No | Total Questions: 215 | QuizVerse AI Tutor

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### General Instructions:

1. This paper contains 215 questions across 4 section(s): English, Math, Reading, Science.
2. Duration: 2h 55m. Maximum marks: 36 (composite).
3. Negative marking: No.
4. Read each question carefully before answering.

### Section 1: English (75 Questions)

#### Q1. The author's central claim is that:

- (A) Tradition is paramount
- (B) Technology is harmful
- (C) Innovation requires risk
- (D) Change is impossible

#### Q2. Which rhetorical device does the author employ in line 15?

- (A) Alliteration
- (B) Onomatopoeia
- (C) Analogy
- (D) Hyperbole

#### Q3. Which choice provides the most relevant detail?

- (A) Option C: personal anecdote
- (B) Option A: specific data
- (C) Option D: rhetorical question
- (D) Option B: general statement

#### Q4. The primary purpose of the passage is to:

- (A) describe a scene
- (B) tell a story
- (C) argue a position
- (D) list facts

#### Q5. The word 'pernicious' most nearly means:

- (A) temporary
- (B) neutral
- (C) beneficial
- (D) harmful

**Q6. Which choice most effectively combines the underlined sentences?**

- (A) Using a semicolon
- (B) Using 'and'
- (C) Using 'but'
- (D) Using a dash

**Q7. Which sentence best summarizes the main idea?**

- (A) The first sentence
- (B) The topic sentence
- (C) None of these
- (D) The last sentence

**Q8. The function of paragraph 3 is to:**

- (A) Conclude the essay
- (B) Provide a counterargument
- (C) Introduce the topic
- (D) Restate the thesis

**Q9. The author uses the metaphor to:**

- (A) confuse readers
- (B) add humor
- (C) digress
- (D) illustrate complexity

**Q10. The author uses the metaphor to:**

- (A) confuse readers
- (B) illustrate complexity
- (C) add humor
- (D) digress

**Q11. Which choice most effectively combines the underlined sentences?**

- (A) Using a semicolon
- (B) Using 'and'
- (C) Using 'but'
- (D) Using a dash

**Q12. In the passage, the author's tone can best be described as:**

- (A) analytical
- (B) hostile
- (C) sarcastic
- (D) indifferent

**Q13. The author includes the example in paragraph 2 in order to:**

- (A) Create suspense
- (B) Introduce a digression
- (C) Support the thesis
- (D) Refute a claim

**Q14. Which choice most effectively combines the underlined sentences?**

- (A) Using 'but'
- (B) Using a semicolon
- (C) Using 'and'
- (D) Using a dash

**Q15. The word 'equivocal' most nearly means:**

- (A) ambiguous
- (B) certain
- (C) gentle
- (D) rapid

**Q16. In the passage, the author's tone can best be described as:**

- (A) indifferent
- (B) sarcastic
- (C) analytical
- (D) hostile

**Q17. The word 'equivocal' most nearly means:**

- (A) certain
- (B) rapid
- (C) ambiguous
- (D) gentle

**Q18. The word 'ameliorate' most nearly means:**

- (A) improve
- (B) maintain
- (C) worsen
- (D) ignore

**Q19. The passage's organizational pattern is best described as:**

- (A) Compare and contrast
- (B) Spatial
- (C) Cause and effect
- (D) Chronological

**Q20. Which transition would best connect sentences 3 and 4?**

- (A) Therefore
- (B) Meanwhile
- (C) Similarly
- (D) However

**Q21. Which choice provides the most relevant detail?**

- (A) Option D: rhetorical question
- (B) Option C: personal anecdote
- (C) Option A: specific data
- (D) Option B: general statement

**Q22. The passage implies that the outcome was:**

- (A) Desired
- (B) Unexpected
- (C) Irrelevant
- (D) Inevitable

**Q23. The author's central claim is that:**

- (A) Technology is harmful
- (B) Innovation requires risk
- (C) Tradition is paramount
- (D) Change is impossible

**Q24. The author uses the metaphor to:**

- (A) digress
- (B) add humor
- (C) confuse readers
- (D) illustrate complexity

**Q25. The word 'ephemeral' most nearly means:**

- (A) mysterious
- (B) powerful
- (C) permanent
- (D) short-lived

**Q26. According to the passage, the primary cause was:**

- (A) Natural disasters
- (B) Political decisions
- (C) Economic factors
- (D) Social changes

**Q27. The graph supports which claim from the passage?**

- (A) Both claims
- (B) Claim in paragraph 3
- (C) Neither claim
- (D) Claim in paragraph 1

**Q28. The function of paragraph 3 is to:**

- (A) Restate the thesis
- (B) Introduce the topic
- (C) Conclude the essay
- (D) Provide a counterargument

**Q29. The author includes the example in paragraph 2 in order to:**

- (A) Support the thesis
- (B) Introduce a digression
- (C) Create suspense
- (D) Refute a claim

**Q30. The passage's organizational pattern is best described as:**

- (A) Chronological
- (B) Spatial
- (C) Cause and effect
- (D) Compare and contrast

**Q31. Which word best completes: 'The scientist's \_\_\_\_ approach led to groundbreaking discoveries.'**

- (A) timid
- (B) haphazard
- (C) reckless
- (D) methodical

**Q32. According to the passage, the primary cause was:**

- (A) Economic factors
- (B) Social changes
- (C) Political decisions
- (D) Natural disasters

**Q33. The graph supports which claim from the passage?**

- (A) Claim in paragraph 1
- (B) Neither claim
- (C) Both claims
- (D) Claim in paragraph 3

**Q34. The word 'ubiquitous' most nearly means:**

- (A) invisible
- (B) expensive
- (C) widespread
- (D) rare

**Q35. Which choice provides the most relevant detail?**

- (A) Option A: specific data
- (B) Option D: rhetorical question
- (C) Option B: general statement
- (D) Option C: personal anecdote

**Q36. The word 'ubiquitous' most nearly means:**

- (A) invisible
- (B) rare
- (C) widespread
- (D) expensive

**Q37. Which revision would most improve sentence clarity?**

- (A) Using passive voice
- (B) Removing the subject
- (C) Splitting into two sentences
- (D) Adding more adjectives

**Q38. The primary purpose of the passage is to:**

- (A) argue a position
- (B) list facts
- (C) describe a scene
- (D) tell a story

**Q39. The passage implies that the outcome was:**

- (A) Inevitable
- (B) Unexpected
- (C) Desired
- (D) Irrelevant

**Q40. Which transition would best connect sentences 3 and 4?**

- (A) Meanwhile
- (B) However
- (C) Therefore
- (D) Similarly

**Q41. Which revision would most improve sentence clarity?**

- (A) Using passive voice
- (B) Adding more adjectives
- (C) Removing the subject
- (D) Splitting into two sentences

**Q42. Which revision would most improve sentence clarity?**

- (A) Removing the subject
- (B) Adding more adjectives
- (C) Using passive voice
- (D) Splitting into two sentences

**Q43. Which best describes the relationship between the two passages?**

- (A) Complementary
- (B) Sequential
- (C) Contradictory
- (D) Unrelated

**Q44. Which sentence best summarizes the main idea?**

- (A) The topic sentence
- (B) The last sentence
- (C) None of these
- (D) The first sentence

**Q45. The author includes the example in paragraph 2 in order to:**

- (A) Introduce a digression
- (B) Refute a claim
- (C) Create suspense
- (D) Support the thesis

**Q46. The passage implies that the outcome was:**

- (A) Inevitable
- (B) Irrelevant
- (C) Unexpected
- (D) Desired

**Q47. Which choice provides the most relevant detail?**

- (A) Option B: general statement
- (B) Option C: personal anecdote
- (C) Option D: rhetorical question
- (D) Option A: specific data

**Q48. The author includes the example in paragraph 2 in order to:**

- (A) Support the thesis
- (B) Introduce a digression
- (C) Create suspense
- (D) Refute a claim

**Q49. Which word best completes: 'The scientist's \_\_\_\_ approach led to groundbreaking discoveries.'**

- (A) haphazard
- (B) timid
- (C) methodical
- (D) reckless

**Q50. Which evidence best supports the author's claim?**

- (A) The conclusion
- (B) Statistical data in paragraph 2
- (C) The title
- (D) The anecdote in paragraph 1

**Q51. The word 'pernicious' most nearly means:**

- (A) temporary
- (B) neutral
- (C) harmful
- (D) beneficial

**Q52. Which rhetorical device does the author employ in line 15?**

- (A) Alliteration
- (B) Analogy
- (C) Onomatopoeia
- (D) Hyperbole

**Q53. Which revision would most improve sentence clarity?**

- (A) Removing the subject
- (B) Adding more adjectives
- (C) Splitting into two sentences
- (D) Using passive voice

**Q54. According to the passage, the primary cause was:**

- (A) Social changes
- (B) Natural disasters
- (C) Economic factors
- (D) Political decisions

**Q55. Which rhetorical device does the author employ in line 15?**

- (A) Alliteration
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- (B) methodical
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- (D) reckless

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- (A) temporary
- (B) beneficial
- (C) neutral
- (D) harmful

**Q58. The graph supports which claim from the passage?**

- (A) Claim in paragraph 3
- (B) Both claims
- (C) Claim in paragraph 1
- (D) Neither claim

**Q59. Which choice provides the most relevant detail?**

- (A) Option A: specific data
- (B) Option C: personal anecdote
- (C) Option B: general statement
- (D) Option D: rhetorical question

**Q60. Which best describes the relationship between the two passages?**

- (A) Unrelated
- (B) Sequential
- (C) Complementary
- (D) Contradictory

**Q61. The graph supports which claim from the passage?**

- (A) Claim in paragraph 3
- (B) Claim in paragraph 1
- (C) Both claims
- (D) Neither claim

**Q62. The word 'equivocal' most nearly means:**

- (A) certain
- (B) ambiguous
- (C) rapid
- (D) gentle

**Q63. The passage's organizational pattern is best described as:**

- (A) Chronological
- (B) Cause and effect
- (C) Compare and contrast
- (D) Spatial

**Q64. The passage's organizational pattern is best described as:**

- (A) Chronological
- (B) Compare and contrast
- (C) Spatial
- (D) Cause and effect

**Q65. The word 'pragmatic' most nearly means:**

- (A) theoretical
- (B) idealistic
- (C) practical
- (D) emotional

**Q66. Which best describes the relationship between the two passages?**

- (A) Unrelated
- (B) Sequential
- (C) Contradictory
- (D) Complementary

**Q67. The word 'ephemeral' most nearly means:**

- (A) short-lived
- (B) mysterious
- (C) powerful
- (D) permanent

**Q68. The word 'equivocal' most nearly means:**

- (A) ambiguous
- (B) certain
- (C) gentle
- (D) rapid

**Q69. The word 'pragmatic' most nearly means:**

- (A) theoretical
- (B) emotional
- (C) idealistic
- (D) practical

**Q70. In the passage, the author's tone can best be described as:**

- (A) indifferent
- (B) sarcastic
- (C) analytical
- (D) hostile

**Q71. The passage's organizational pattern is best described as:**

- (A) Chronological
- (B) Spatial
- (C) Compare and contrast
- (D) Cause and effect

**Q72. The word 'pragmatic' most nearly means:**

- (A) practical
- (B) emotional
- (C) idealistic
- (D) theoretical

**Q73. Which sentence best summarizes the main idea?**

- (A) The topic sentence
- (B) The first sentence
- (C) None of these
- (D) The last sentence

**Q74. The author's central claim is that:**

- (A) Change is impossible
- (B) Innovation requires risk
- (C) Tradition is paramount
- (D) Technology is harmful

**Q75. Which evidence best supports the author's claim?**

- (A) Statistical data in paragraph 2
- (B) The anecdote in paragraph 1
- (C) The conclusion
- (D) The title

## Section 2: Math (60 Questions)

**Q76. The eccentricity of the ellipse  $x^2/16 + y^2/5 = 1$  is:**

- (A) 0.84
- (B) 0.61
- (C) 0.41
- (D) 0.72

**Q77. The derivative of  $x^4 \sin(x)$  at  $x = \pi$  is:**

- (A) 13.60
- (B) -19.22
- (C) 0.97
- (D) -12.81

**Q78. The sum of first 22 terms of AP with  $a = 4$ ,  $d = 2$  is:**

- (A) 3735
- (B) 300
- (C) 1431
- (D) 3078

**Q79. The rank of the matrix  $[[1,2,3],[4,5,6],[9,11,13]]$  is:**

- (A) 2
- (B) 0
- (C) 1
- (D) 3

**Q80. The eccentricity of the ellipse  $x^2/21 + y^2/15 = 1$  is:**

- (A) 0.71
- (B) 0.82
- (C) 0.87
- (D) 0.75

**Q81. If  $z = 1 + 4i$ , then  $|z| =$**

- (A) 2.64
- (B) 9.04
- (C) 1.62
- (D) 9.83

**Q82. The rank of the matrix  $[[1,2,3],[4,5,6],[9,9,11]]$  is:**

- (A) 1
- (B) 3
- (C) 2
- (D) 0

**Q83. The number of ways to arrange 8 distinct objects in a circle is:**

- (A) 3315
- (B) 635
- (C) 983
- (D) 334

**Q84. If  $z = 4 + 2i$ , then  $|z| =$**

- (A) 7.49
- (B) 7.65
- (C) 6.12
- (D) 7.77

**Q85. The derivative of  $x^6 \sin(x)$  at  $x = \pi$  is:**

- (A) -10.08
- (B) -7.61
- (C) -17.66
- (D) 13.61

**Q86. If  $z = 1 + 3i$ , then  $|z| =$**

- (A) 6.90
- (B) 4.76
- (C) 3.60
- (D) 6.77

**Q87. The rank of the matrix  $[[1,2,3],[4,5,6],[7,10,13]]$  is:**

- (A) 2
- (B) 3
- (C) 0
- (D) 1

**Q88. The area under  $y = x^2$  from  $x = 0$  to  $x = 5$  is:**

- (A) 97.2
- (B) 135.5
- (C) 140.3
- (D) 92.1

**Q89. The distance between parallel lines  $5x + 2y = 9$  and  $3x + 4y = 20$  is:**

- (A) 4.27
- (B) 1.29
- (C) 3.68
- (D) 4.60

**Q90. The mean of a binomial distribution with  $n = 45$  and  $p = 0.6$  is:**

- (A) 26.0
- (B) 22.8
- (C) 36.6
- (D) 7.6

**Q91. The value of integral  $\sin^2(x) dx$  from 0 to  $\pi/2$  is:**

- (A)  $15\pi/16$
- (B)  $12\pi/4$
- (C)  $9\pi/4$
- (D)  $8\pi/16$

**Q92. The derivative of  $x^6 \sin(x)$  at  $x = \pi$  is:**

- (A) -5.60
- (B) -15.42
- (C) -18.11
- (D) -12.74

**Q93. The derivative of  $x^6 \sin(x)$  at  $x = \pi$  is:**

- (A) -10.71
- (B) -2.07
- (C) 15.30
- (D) 12.60

**Q94. If  $\det(A) = 5$  and  $A$  is  $3 \times 3$ , then  $\det(2A) =$**

- (A) 33
- (B) 37
- (C) 76
- (D) 18

**Q95. The number of ways to arrange 3 distinct objects in a circle is:**

- (A) 2473
- (B) 3964
- (C) 2411
- (D) 4040

**Q96. The distance between parallel lines  $4x + 3y = 7$  and  $4x + 5y = 11$  is:**

- (A) 4.31
- (B) 1.33
- (C) 4.38
- (D) 1.51

**Q97. The equation of tangent to  $y = x^4$  at  $x = 2$  is:**

- (A)  $y = 6x - 7$
- (B)  $y = 11x - 7$
- (C)  $y = 3x - 11$
- (D)  $y = 11x - 6$

**Q98. The equation of tangent to  $y = x^4$  at  $x = 3$  is:**

- (A)  $y = 3x - 13$
- (B)  $y = 8x - 14$
- (C)  $y = 12x - 15$
- (D)  $y = 4x - 9$

**Q99. The rank of the matrix  $[[1,2,3],[4,5,6],[9,10,11]]$  is:**

- (A) 1
- (B) 2
- (C) 3
- (D) 0

**Q100. If  $z = 1 + 3i$ , then  $|z| =$**

- (A) 7.61
- (B) 7.21
- (C) 5.21
- (D) 2.86

**Q101. Integral of  $(x^3 + 6)$  dx from 0 to 1 equals:**

- (A) 18
- (B) 95
- (C) 49
- (D) 48

**Q102. The distance between parallel lines  $4x + 3y = 3$  and  $5x + 3y = 13$  is:**

- (A) 3.33
- (B) 2.97
- (C) 0.55
- (D) 1.84

**Q103. The mean of a binomial distribution with  $n = 27$  and  $p = 0.5$  is:**

- (A) 40.0
- (B) 33.5
- (C) 4.8
- (D) 11.7

**Q104. The sum of first 14 terms of AP with  $a = 1$ ,  $d = 2$  is:**

- (A) 4956
- (B) 3101
- (C) 3074
- (D) 1436

**Q105. The area under  $y = x^2$  from  $x = 0$  to  $x = 5$  is:**

- (A) 10.7
- (B) 21.0
- (C) 156.2
- (D) 191.6

**Q106. The distance between parallel lines  $2x + 2y = 1$  and  $5x + 2y = 11$  is:**

- (A) 1.23
- (B) 1.29
- (C) 2.50
- (D) 2.40

**Q107. The rank of the matrix  $[[1,2,3],[4,5,6],[9,10,10]]$  is:**

- (A) 3
- (B) 1
- (C) 2
- (D) 0

**Q108. The probability of getting exactly 3 heads in 7 tosses of a fair coin is:**

- (A)  $36/64$
- (B)  $26/64$
- (C)  $41/256$
- (D)  $19/64$

**Q109. The sum of first 47 terms of AP with  $a = 3$ ,  $d = 2$  is:**

- (A) 2773
- (B) 3595
- (C) 4372
- (D) 1269

**Q110. If  $\det(A) = 1$  and  $A$  is  $3 \times 3$ , then  $\det(2A) =$**

- (A) 64
- (B) 1
- (C) 6
- (D) 99

**Q111.  $\lim_{x \rightarrow 0} \sin(2x)/x =$**

- (A) 4
- (B) 4
- (C) 4
- (D) 6

**Q112. The mean of a binomial distribution with  $n = 30$  and  $p = 0.4$  is:**

- (A) 3.2
- (B) 18.9
- (C) 21.4
- (D) 20.2

**Q113. The equation of tangent to  $y = x^3$  at  $x = 1$  is:**

- (A)  $y = 6x - 19$
- (B)  $y = 3x - 3$
- (C)  $y = 4x - 12$
- (D)  $y = 6x - 6$

**Q114. The equation of tangent to  $y = x^3$  at  $x = 3$  is:**

- (A)  $y = 3x - 11$
- (B)  $y = 3x - 4$
- (C)  $y = 11x - 6$
- (D)  $y = 10x - 18$

**Q115. The area under  $y = x^4$  from  $x = 0$  to  $x = 4$  is:**

- (A) 63.9
- (B) 106.8
- (C) 198.8
- (D) 91.0

**Q116. The derivative of  $x^2 \sin(x)$  at  $x = \pi$  is:**

- (A) 10.25
- (B) -16.24
- (C) 17.99
- (D) -14.79

**Q117. The mean of a binomial distribution with  $n = 22$  and  $p = 0.4$  is:**

- (A) 26.8
- (B) 28.5
- (C) 31.6
- (D) 12.1

**Q118. The distance between parallel lines  $4x + 5y = 4$  and  $4x + 3y = 11$  is:**

- (A) 1.81
- (B) 0.86
- (C) 0.51
- (D) 2.45

**Q119. The eccentricity of the ellipse  $x^2/25 + y^2/3 = 1$  is:**

- (A) 0.52
- (B) 0.32
- (C) 0.70
- (D) 0.45

**Q120. The value of integral  $\sin^4(x) dx$  from 0 to  $\pi/2$  is:**

- (A)  $7\pi/8$
- (B)  $5\pi/16$
- (C)  $14\pi/16$
- (D)  $14\pi/32$

**Q121.  $\lim_{x \rightarrow 0} \sin(5x)/x =$**

- (A) 7
- (B) 7
- (C) 6
- (D) 6

**Q122. The number of ways to arrange 6 distinct objects in a circle is:**

- (A) 2006
- (B) 4060
- (C) 1232
- (D) 2412

**Q123. The eccentricity of the ellipse  $x^2/12 + y^2/11 = 1$  is:**

- (A) 0.68
- (B) 0.61
- (C) 0.52
- (D) 0.40

**Q124. If  $\det(A) = 10$  and  $A$  is  $3 \times 3$ , then  $\det(2A) =$**

- (A) 7
- (B) 6
- (C) 11
- (D) 20

**Q125.  $\lim_{x \rightarrow 0} \sin(7x)/x =$**

- (A) 4
- (B) 5
- (C) 2
- (D) 5

**Q126. Integral of  $(x^1 + 1) dx$  from 0 to 4 equals:**

- (A) 46
- (B) 15
- (C) 43
- (D) 71

**Q127. The number of ways to arrange 6 distinct objects in a circle is:**

- (A) 2855
- (B) 1491
- (C) 1573
- (D) 2345

**Q128. The sum of first 33 terms of AP with  $a = 5$ ,  $d = 4$  is:**

- (A) 2071
- (B) 264
- (C) 3461
- (D) 1223

**Q129. If  $\det(A) = 10$  and  $A$  is  $3 \times 3$ , then  $\det(2A) =$**

- (A) 54
- (B) 2
- (C) 4
- (D) 18

**Q130. The distance between parallel lines  $3x + 4y = 10$  and  $3x + 5y = 19$  is:**

- (A) 4.08
- (B) 4.12
- (C) 3.71
- (D) 3.23

**Q131. The mean of a binomial distribution with  $n = 48$  and  $p = 0.5$  is:**

- (A) 22.8
- (B) 19.5
- (C) 6.9
- (D) 7.5

**Q132. The mean of a binomial distribution with  $n = 16$  and  $p = 0.3$  is:**

- (A) 2.3
- (B) 34.9
- (C) 25.0
- (D) 10.1

**Q133. The mean of a binomial distribution with  $n = 26$  and  $p = 0.3$  is:**

- (A) 15.5
- (B) 12.2
- (C) 2.1
- (D) 37.1

**Q134. The eccentricity of the ellipse  $x^2/23 + y^2/8 = 1$  is:**

- (A) 0.30
- (B) 0.40
- (C) 0.57
- (D) 0.42

**Q135. The area under  $y = x^3$  from  $x = 0$  to  $x = 5$  is:**

- (A) 49.3
- (B) 152.4
- (C) 66.6
- (D) 168.1

### Section 3: Reading (40 Questions)

**Q136. The word 'equivocal' most nearly means:**

- (A) ambiguous
- (B) gentle
- (C) rapid
- (D) certain

**Q137. Which choice most effectively combines the underlined sentences?**

- (A) Using a dash
- (B) Using a semicolon
- (C) Using 'and'
- (D) Using 'but'

**Q138. The word 'pernicious' most nearly means:**

- (A) neutral
- (B) temporary
- (C) harmful
- (D) beneficial

**Q139. Which revision would most improve sentence clarity?**

- (A) Adding more adjectives
- (B) Removing the subject
- (C) Using passive voice
- (D) Splitting into two sentences

**Q140. Which rhetorical device does the author employ in line 15?**

- (A) Hyperbole
- (B) Alliteration
- (C) Analogy
- (D) Onomatopoeia

**Q141. The word 'ubiquitous' most nearly means:**

- (A) expensive
- (B) rare
- (C) invisible
- (D) widespread

**Q142. The author uses the metaphor to:**

- (A) digress
- (B) add humor
- (C) illustrate complexity
- (D) confuse readers

**Q143. In the passage, the author's tone can best be described as:**

- (A) indifferent
- (B) sarcastic
- (C) analytical
- (D) hostile

**Q144. The author uses the metaphor to:**

- (A) digress
- (B) confuse readers
- (C) illustrate complexity
- (D) add humor

**Q145. Which sentence best summarizes the main idea?**

- (A) None of these
- (B) The first sentence
- (C) The topic sentence
- (D) The last sentence

**Q146. The author includes the example in paragraph 2 in order to:**

- (A) Refute a claim
- (B) Introduce a digression
- (C) Support the thesis
- (D) Create suspense

**Q147. The primary purpose of the passage is to:**

- (A) tell a story
- (B) argue a position
- (C) list facts
- (D) describe a scene

**Q148. The passage implies that the outcome was:**

- (A) Desired
- (B) Unexpected
- (C) Irrelevant
- (D) Inevitable

**Q149. Which sentence best summarizes the main idea?**

- (A) The last sentence
- (B) The topic sentence
- (C) The first sentence
- (D) None of these

**Q150. Which sentence best summarizes the main idea?**

- (A) The topic sentence
- (B) None of these
- (C) The last sentence
- (D) The first sentence

**Q151. In the passage, the author's tone can best be described as:**

- (A) analytical
- (B) indifferent
- (C) hostile
- (D) sarcastic

**Q152. Which revision would most improve sentence clarity?**

- (A) Adding more adjectives
- (B) Splitting into two sentences
- (C) Removing the subject
- (D) Using passive voice

**Q153. The word 'pernicious' most nearly means:**

- (A) temporary
- (B) beneficial
- (C) neutral
- (D) harmful

**Q154. Which rhetorical device does the author employ in line 15?**

- (A) Alliteration
- (B) Onomatopoeia
- (C) Analogy
- (D) Hyperbole

**Q155. The word 'ameliorate' most nearly means:**

- (A) ignore
- (B) maintain
- (C) worsen
- (D) improve

**Q156. The word 'ubiquitous' most nearly means:**

- (A) expensive
- (B) invisible
- (C) rare
- (D) widespread

**Q157. The graph supports which claim from the passage?**

- (A) Neither claim
- (B) Claim in paragraph 1
- (C) Both claims
- (D) Claim in paragraph 3

**Q158. Which choice most effectively combines the underlined sentences?**

- (A) Using a dash
- (B) Using 'and'
- (C) Using a semicolon
- (D) Using 'but'

**Q159. The word 'pragmatic' most nearly means:**

- (A) theoretical
- (B) idealistic
- (C) emotional
- (D) practical

**Q160. The word 'equivocal' most nearly means:**

- (A) rapid
- (B) certain
- (C) ambiguous
- (D) gentle

**Q161. Which revision would most improve sentence clarity?**

- (A) Removing the subject
- (B) Adding more adjectives
- (C) Splitting into two sentences
- (D) Using passive voice

**Q162. The graph supports which claim from the passage?**

- (A) Both claims
- (B) Neither claim
- (C) Claim in paragraph 1
- (D) Claim in paragraph 3

**Q163. The word 'ephemeral' most nearly means:**

- (A) short-lived
- (B) mysterious
- (C) powerful
- (D) permanent

**Q164. The word 'equivocal' most nearly means:**

- (A) rapid
- (B) certain
- (C) gentle
- (D) ambiguous

**Q165. The author's central claim is that:**

- (A) Tradition is paramount
- (B) Change is impossible
- (C) Innovation requires risk
- (D) Technology is harmful

**Q166. The passage implies that the outcome was:**

- (A) Irrelevant
- (B) Desired
- (C) Inevitable
- (D) Unexpected

**Q167. The graph supports which claim from the passage?**

- (A) Claim in paragraph 3
- (B) Neither claim
- (C) Both claims
- (D) Claim in paragraph 1

**Q168. The word 'pragmatic' most nearly means:**

- (A) emotional
- (B) theoretical
- (C) practical
- (D) idealistic

**Q169. The function of paragraph 3 is to:**

- (A) Provide a counterargument
- (B) Restate the thesis
- (C) Conclude the essay
- (D) Introduce the topic

**Q170. The passage's organizational pattern is best described as:**

- (A) Cause and effect
- (B) Spatial
- (C) Compare and contrast
- (D) Chronological

**Q171. The function of paragraph 3 is to:**

- (A) Conclude the essay
- (B) Restate the thesis
- (C) Provide a counterargument
- (D) Introduce the topic

**Q172. According to the passage, the primary cause was:**

- (A) Economic factors
- (B) Natural disasters
- (C) Social changes
- (D) Political decisions

**Q173. Which choice most effectively combines the underlined sentences?**

- (A) Using 'but'
- (B) Using 'and'
- (C) Using a semicolon
- (D) Using a dash

**Q174. Which choice provides the most relevant detail?**

- (A) Option C: personal anecdote
- (B) Option D: rhetorical question
- (C) Option A: specific data
- (D) Option B: general statement

**Q175. The function of paragraph 3 is to:**

- (A) Provide a counterargument
- (B) Restate the thesis
- (C) Introduce the topic
- (D) Conclude the essay

## Section 4: Science (40 Questions)

**Q176. Gibbs free energy change for a spontaneous process is:**

- (A) Zero
- (B) Undefined
- (C) Positive
- (D) Negative

**Q177. The ore of aluminium is:**

- (A) Haematite
- (B) Chalcopyrite
- (C) Galena
- (D) Bauxite

**Q178. Which of the following has the highest lattice energy?**

- (A) NaCl
- (B) NaI
- (C) NaF
- (D) NaBr

**Q179. The IUPAC name of  $\text{CH}_3\text{CH}(\text{OH})\text{CH}_3$  is:**

- (A) Propan-1-ol
- (B) Isopropyl ether
- (C) 2-Methylethanol
- (D) Propan-2-ol

**Q180. The reagent for converting aldehyde to carboxylic acid is:**

- (A)  $\text{NaBH}_4$
- (B)  $\text{LiAlH}_4$
- (C) Zn-Hg / HCl
- (D)  $\text{KMnO}_4$  /  $\text{K}_2\text{Cr}_2\text{O}_7$

**Q181. A force of 64 N acts on a 17 kg body initially at rest. The velocity after 4 s is:**

- (A) 7 m/s
- (B) 26 m/s
- (C) 49 m/s
- (D) 37 m/s

**Q182. The binding energy per nucleon of Fe-56 is approximately:**

- (A) 9.2 MeV
- (B) 7.6 MeV
- (C) 8.8 MeV
- (D) 6.5 MeV

**Q183. The shape of XeF<sub>4</sub> is:**

- (A) Octahedral
- (B) See-saw
- (C) Tetrahedral
- (D) Square planar

**Q184. The hybridization of C in acetylene is:**

- (A) sp<sup>3</sup>d
- (B) sp<sup>3</sup>
- (C) sp
- (D) sp<sup>2</sup>

**Q185. The IUPAC name of neopentane is:**

- (A) Cyclopentane
- (B) Pentane
- (C) 2,2-Dimethylpropane
- (D) 2-Methylbutane

**Q186. An electron moves with velocity  $1 \times 10^6$  m/s perpendicular to a magnetic field of 0.2 T. The radius of its path is:**

- (A) 1.26 cm
- (B) 1.43 cm
- (C) 1.26 cm
- (D) 3.91 cm

**Q187. The crystal field splitting energy in octahedral complex is:**

- (A)  $10Dq_{tet}$
- (B)  $\Delta_{tet}$
- (C)  $\Delta_{sq}$
- (D)  $\Delta_{oct}$

**Q188. The lightest noble gas is:**

- (A) Neon
- (B) Krypton
- (C) Argon
- (D) Helium

**Q189. Markovnikov's rule applies to the addition of HBr to:**

- (A) Propene
- (B) Benzene
- (C) Methane
- (D) Ethene

**Q190. A ball is dropped from height 90 m. Its velocity just before hitting the ground is:**

- (A) 35.0 m/s
- (B) 32.6 m/s
- (C) 28.3 m/s
- (D) 35.8 m/s

**Q191. A body of mass 4 kg is moving in a circle of radius 8 m at 19 m/s. The centripetal force is:**

- (A) 176 N
- (B) 65 N
- (C) 146 N
- (D) 124 N

**Q192. A Carnot engine operates between 781 K and 324 K. Its efficiency is:**

- (A) 60%
- (B) 51%
- (C) 54%
- (D) 28%

**Q193. For a first-order reaction with  $k = 0.085 \text{ s}^{-1}$ , the half-life is:**

- (A) 13.9 s
- (B) 10.0 s
- (C) 15.0 s
- (D) 20.0 s

**Q194. The equilibrium constant  $K_p$  and  $K_c$  are related by:**

- (A)  $K_p = K_c$
- (B)  $K_p = K_c(RT)^{\Delta n}$
- (C)  $K_p = K_c/RT$
- (D)  $K_p = RT \cdot K_c$

**Q195. A spring with  $k = 494 \text{ N/m}$  is compressed by 0.17 m. The stored PE is:**

- (A) 20.63 J
- (B) 16.40 J
- (C) 18.25 J
- (D) 22.76 J

**Q196. A radioactive substance has half-life 14 days. The fraction remaining after 54 days is:**

- (A) 1/4
- (B) 1/16
- (C) 1/4
- (D) 1/8

**Q197. A projectile is launched at 45 degrees with initial velocity 36 m/s. The time of flight is approximately:**

- (A) 2.4 s
- (B) 1.6 s
- (C) 4.3 s
- (D) 2.5 s

**Q198. A car of mass 1593 kg moving at 44 m/s brakes to rest in 9 s. The braking force is:**

- (A) 15289 N
- (B) 3916 N
- (C) 16867 N
- (D) 4174 N

**Q199. Lanthanide contraction is caused by:**

- (A) High ionization energy
- (B) Nuclear fusion
- (C) Electron capture
- (D) Poor shielding by 4f electrons

**Q200. Which reagent is used for Baeyer-Villiger oxidation?**

- (A) mCPBA / peracid
- (B) NaBH<sub>4</sub>
- (C) KMnO<sub>4</sub>
- (D) LiAlH<sub>4</sub>

**Q201. A wire of resistance 19 ohm is bent into a circle. Effective resistance between diametrically opposite points is:**

- (A) 2 ohm
- (B) 8 ohm
- (C) 6 ohm
- (D) 8 ohm

**Q202. The de Broglie wavelength of an electron accelerated through 50 V is approximately:**

- (A) 1.07 Angstrom
- (B) 1.32 Angstrom
- (C) 2.55 Angstrom
- (D) 1.17 Angstrom

**Q203. The entropy change for an irreversible process is:**

- (A) Negative always
- (B) Zero
- (C) Greater than  $q_{rev}/T$
- (D) Equal to  $q/T$

**Q204. A convex lens of focal length 16 cm forms a real image of an object placed 22 cm away. The image distance is:**

- (A) 25 cm
- (B) 15 cm
- (C) 51 cm
- (D) 45 cm

**Q205. Light passes from glass ( $n=1.6$ ) to air. The critical angle is:**

- (A) 43 degrees
- (B) 38 degrees
- (C) 39 degrees
- (D) 43 degrees

**Q206. The work function of a metal is 1.6 eV. The threshold frequency is:**

- (A)  $9.14 \times 10^{14}$  Hz
- (B)  $11.96 \times 10^{14}$  Hz
- (C)  $10.62 \times 10^{14}$  Hz
- (D)  $3.11 \times 10^{14}$  Hz

**Q207. In photoelectric effect, the stopping potential for light of wavelength 252 nm on a metal with work function 3.7 eV is:**

- (A) 3.34 V
- (B) 3.59 V
- (C) 1.49 V
- (D) 2.45 V

**Q208. The colour of  $\text{KMnO}_4$  is due to:**

- (A) f-f transition
- (B) Charge transfer transition
- (C) d-d transition
- (D) s-p transition

**Q209. A solenoid of 145 turns and length 0.1 m carries current 4 A. The magnetic field inside is:**

- (A) 16.56 mT
- (B) 9.69 mT
- (C) 17.15 mT
- (D) 1.19 mT

**Q210. The current through a 11 ohm resistor connected to a 12 V battery is:**

- (A) 2.51 A
- (B) 2.22 A
- (C) 2.50 A
- (D) 2.81 A

**Q211. VSEPR theory predicts the shape of  $\text{SF}_6$  as:**

- (A) Octahedral
- (B) Trigonal bipyramidal
- (C) Square planar
- (D) Tetrahedral

**Q212. Which test distinguishes aldehydes from ketones?**

- (A) Lucas test
- (B) Lassaigne test
- (C) Beilstein test
- (D) Tollens' test (silver mirror)

**Q213. An ideal gas at 292 K is heated at constant pressure to 489 K. The ratio of final to initial volume is:**

- (A) 2.1
- (B) 2.1
- (C) 2.3
- (D) 2.7

**Q214. The focal length of a concave mirror is 21 cm. An object at 25 cm forms image at:**

- (A) 34 cm, real inverted
- (B) 47 cm, real inverted
- (C) 15 cm, real inverted
- (D) 53 cm, real inverted

**Q215. Colligative properties depend on:**

- (A) Nature of solvent
- (B) Molar mass of solute
- (C) Nature of solute
- (D) Number of solute particles

# Answer Key

Q1: (C)	Q2: (C)	Q3: (B)	Q4: (C)	Q5: (D)
Q6: (A)	Q7: (A)	Q8: (B)	Q9: (D)	Q10: (B)
Q11: (A)	Q12: (A)	Q13: (C)	Q14: (B)	Q15: (A)
Q16: (C)	Q17: (C)	Q18: (A)	Q19: (C)	Q20: (D)
Q21: (C)	Q22: (B)	Q23: (B)	Q24: (D)	Q25: (D)
Q26: (C)	Q27: (D)	Q28: (D)	Q29: (A)	Q30: (C)
Q31: (D)	Q32: (A)	Q33: (A)	Q34: (C)	Q35: (A)
Q36: (C)	Q37: (C)	Q38: (A)	Q39: (B)	Q40: (B)
Q41: (D)	Q42: (D)	Q43: (A)	Q44: (D)	Q45: (D)
Q46: (C)	Q47: (D)	Q48: (A)	Q49: (C)	Q50: (B)
Q51: (C)	Q52: (B)	Q53: (C)	Q54: (C)	Q55: (C)
Q56: (B)	Q57: (D)	Q58: (C)	Q59: (A)	Q60: (C)
Q61: (B)	Q62: (B)	Q63: (B)	Q64: (D)	Q65: (C)
Q66: (D)	Q67: (A)	Q68: (A)	Q69: (D)	Q70: (C)
Q71: (D)	Q72: (A)	Q73: (B)	Q74: (B)	Q75: (A)
Q76: (C)	Q77: (B)	Q78: (C)	Q79: (A)	Q80: (D)
Q81: (D)	Q82: (C)	Q83: (D)	Q84: (D)	Q85: (B)
Q86: (A)	Q87: (A)	Q88: (C)	Q89: (B)	Q90: (D)
Q91: (D)	Q92: (B)	Q93: (B)	Q94: (A)	Q95: (A)
Q96: (D)	Q97: (A)	Q98: (D)	Q99: (B)	Q100: (D)
Q101: (B)	Q102: (C)	Q103: (A)	Q104: (D)	Q105: (B)
Q106: (B)	Q107: (C)	Q108: (C)	Q109: (C)	Q110: (A)
Q111: (A)	Q112: (B)	Q113: (B)	Q114: (D)	Q115: (A)
Q116: (A)	Q117: (C)	Q118: (C)	Q119: (A)	Q120: (A)
Q121: (C)	Q122: (A)	Q123: (C)	Q124: (C)	Q125: (B)
Q126: (C)	Q127: (B)	Q128: (D)	Q129: (C)	Q130: (C)
Q131: (B)	Q132: (B)	Q133: (A)	Q134: (D)	Q135: (B)
Q136: (A)	Q137: (B)	Q138: (C)	Q139: (D)	Q140: (C)
Q141: (D)	Q142: (C)	Q143: (C)	Q144: (C)	Q145: (B)
Q146: (C)	Q147: (B)	Q148: (B)	Q149: (C)	Q150: (D)
Q151: (A)	Q152: (B)	Q153: (D)	Q154: (C)	Q155: (D)
Q156: (D)	Q157: (B)	Q158: (C)	Q159: (D)	Q160: (C)
Q161: (C)	Q162: (C)	Q163: (A)	Q164: (D)	Q165: (C)
Q166: (D)	Q167: (D)	Q168: (C)	Q169: (A)	Q170: (A)
Q171: (C)	Q172: (A)	Q173: (C)	Q174: (C)	Q175: (A)
Q176: (D)	Q177: (D)	Q178: (C)	Q179: (D)	Q180: (D)
Q181: (B)	Q182: (C)	Q183: (D)	Q184: (C)	Q185: (C)
Q186: (A)	Q187: (D)	Q188: (D)	Q189: (A)	Q190: (A)
Q191: (C)	Q192: (D)	Q193: (A)	Q194: (B)	Q195: (B)
Q196: (D)	Q197: (A)	Q198: (D)	Q199: (D)	Q200: (A)
Q201: (B)	Q202: (A)	Q203: (C)	Q204: (B)	Q205: (B)
Q206: (B)	Q207: (C)	Q208: (B)	Q209: (C)	Q210: (D)

Q211: (A)

Q212: (D)

Q213: (D)

Q214: (B)

Q215: (D)

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