

# ACT

## Sample Question Paper - 2022

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. Which sentence best summarizes the main idea?

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

#### Q2. The graph supports which claim from the passage?

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

#### Q3. The word 'ephemeral' most nearly means:

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

#### Q4. Which word best completes: 'The scientist's \_\_\_\_ approach led to groundbreaking discoveries.'

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

#### Q5. Which rhetorical device does the author employ in line 15?

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

**Q6. In the passage, the author's tone can best be described as:**

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

**Q7. The word 'ubiquitous' most nearly means:**

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

**Q8. The passage implies that the outcome was:**

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

**Q9. The author's central claim is that:**

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

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

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

**Q11. The word 'pragmatic' most nearly means:**

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

**Q12. Which rhetorical device does the author employ in line 15?**

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

**Q13. The passage's organizational pattern is best described as:**

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

**Q14. 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

**Q15. The graph supports which claim from the passage?**

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

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

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

**Q17. The author uses the metaphor to:**

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

**Q18. Which revision would most improve sentence clarity?**

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

**Q19. The word 'pernicious' most nearly means:**

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

**Q20. The primary purpose of the passage is to:**

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

**Q21. The word 'ubiquitous' most nearly means:**

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

**Q22. The word 'equivocal' most nearly means:**

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

**Q23. Which sentence best summarizes the main idea?**

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

**Q24. The function of paragraph 3 is to:**

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

**Q25. The author's central claim is that:**

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

**Q26. Which transition would best connect sentences 3 and 4?**

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

**Q27. Which choice most effectively combines the underlined sentences?**

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

**Q28. Which word best completes: 'The scientist's \_\_\_\_ approach led to groundbreaking discoveries.'**

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

**Q29. The passage's organizational pattern is best described as:**

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

**Q30. Which choice most effectively combines the underlined sentences?**

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

**Q31. The author includes the example in paragraph 2 in order to:**

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

**Q32. Which choice provides the most relevant detail?**

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

**Q33. Which revision would most improve sentence clarity?**

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

**Q34. In the passage, the author's tone can best be described as:**

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

**Q35. The passage implies that the outcome was:**

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

**Q36. 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

**Q37. The word 'pernicious' most nearly means:**

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

**Q38. The word 'pernicious' most nearly means:**

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

**Q39. Which choice most effectively combines the underlined sentences?**

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

**Q40. According to the passage, the primary cause was:**

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

**Q41. Which rhetorical device does the author employ in line 15?**

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

**Q42. According to the passage, the primary cause was:**

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

**Q43. In the passage, the author's tone can best be described as:**

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

**Q44. The word 'pragmatic' most nearly means:**

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

**Q45. The word 'equivocal' most nearly means:**

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

**Q46. The author uses the metaphor to:**

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

**Q47. The author uses the metaphor to:**

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

**Q48. The word 'ephemeral' most nearly means:**

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

**Q49. Which transition would best connect sentences 3 and 4?**

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

**Q50. Which transition would best connect sentences 3 and 4?**

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

**Q51. The primary purpose of the passage is to:**

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

**Q52. Which word best completes: 'The scientist's \_\_\_\_ approach led to groundbreaking discoveries.'**

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

**Q53. The passage's organizational pattern is best described as:**

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

**Q54. Which rhetorical device does the author employ in line 15?**

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

**Q55. In the passage, the author's tone can best be described as:**

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

**Q56. 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

**Q57. Which best describes the relationship between the two passages?**

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

**Q58. Which best describes the relationship between the two passages?**

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

**Q59. The word 'ameliorate' most nearly means:**

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

**Q60. The word 'equivocal' most nearly means:**

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

**Q61. The passage implies that the outcome was:**

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

**Q62. The author includes the example in paragraph 2 in order to:**

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

**Q63. The word 'pernicious' most nearly means:**

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

**Q64. Which sentence best summarizes the main idea?**

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

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

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

**Q66. The primary purpose of the passage is to:**

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

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

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

**Q68. Which evidence best supports the author's claim?**

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

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

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

**Q70. The author's central claim is that:**

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

**Q71. Which evidence best supports the author's claim?**

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

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

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

**Q73. The word 'ubiquitous' most nearly means:**

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

**Q74. The primary purpose of the passage is to:**

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

**Q75. The word 'ameliorate' most nearly means:**

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

## Section 2: Math (60 Questions)

**Q76. The value of  $\int_0^{\pi/2} \sin^2(x) dx$  is:**

- (A)  $6\pi/4$
- (B)  $6\pi/8$
- (C)  $14\pi/8$
- (D)  $12\pi/4$

**Q77. Integral of  $(x^2 + 3) dx$  from 0 to 1 equals:**

- (A) 69
- (B) 94
- (C) 3
- (D) 30

**Q78. The area under  $y = x^2$  from  $x = 0$  to  $x = 5$  is:**

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

**Q79. The probability of getting exactly 2 heads in 8 tosses of a fair coin is:**

- (A)  $11/128$
- (B)  $50/32$
- (C)  $22/128$
- (D)  $7/256$

**Q80. The probability of getting exactly 2 heads in 6 tosses of a fair coin is:**

- (A)  $50/32$
- (B)  $19/128$
- (C)  $33/128$
- (D)  $47/256$

**Q81.  $\lim_{x \rightarrow 0} \sin(4x)/x =$**

- (A) 7
- (B) 1
- (C) 1
- (D) 1

**Q82. The sum of first 34 terms of AP with  $a = 2$ ,  $d = 1$  is:**

- (A) 3994
- (B) 265
- (C) 2810
- (D) 1993

**Q83. If  $z = 1 + 5i$ , then  $|z| =$**

- (A) 6.73
- (B) 6.83
- (C) 1.45
- (D) 4.44

**Q84. The rank of the matrix  $[[1,2,3],[4,5,6],[9,11,10]]$  is:**

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

**Q85. The number of ways to arrange 4 distinct objects in a circle is:**

- (A) 1305
- (B) 2855
- (C) 4711
- (D) 3419

**Q86. The equation of tangent to  $y = x^4$  at  $x = 2$  is:**

- (A)  $y = 8x - 20$
- (B)  $y = 4x - 12$
- (C)  $y = 3x - 3$
- (D)  $y = 8x - 2$

**Q87. The mean of a binomial distribution with  $n = 27$  and  $p = 0.5$  is:**

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

**Q88. The probability of getting exactly 4 heads in 8 tosses of a fair coin is:**

- (A)  $14/256$
- (B)  $25/64$
- (C)  $13/64$
- (D)  $9/128$

**Q89.  $\lim_{x \rightarrow 0} \sin(7x)/x =$**

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

**Q90. If  $z = 1 + 4i$ , then  $|z| =$**

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

**Q91. The derivative of  $x^6 \sin(x)$  at  $x = \pi$  is:**

- (A) 13.34
- (B) -15.54
- (C) -10.45
- (D) -8.06

**Q92. If  $\det(A) = 6$  and  $A$  is  $3 \times 3$ , then  $\det(2A) =$**

- (A) 58
- (B) 62
- (C) 98
- (D) 70

**Q93. The eccentricity of the ellipse  $x^2/23 + y^2/8 = 1$  is:**

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

**Q94.  $\lim_{x \rightarrow 0} \sin(2x)/x =$**

- (A) 3
- (B) 3
- (C) 4
- (D) 5

**Q95. The distance between parallel lines  $5x + 2y = 9$  and  $3x + 4y = 20$  is:**

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

**Q96.  $\lim_{x \rightarrow 0} \sin(2x)/x =$**

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

**Q97. Integral of  $(x^2 + 5) dx$  from 0 to 2 equals:**

- (A) 9
- (B) 68
- (C) 36
- (D) 83

**Q98. The value of integral  $\sin^4(x) dx$  from 0 to  $\pi/2$  is:**

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

**Q99. The derivative of  $x^2 \sin(x)$  at  $x = \pi$  is:**

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

**Q100. The mean of a binomial distribution with  $n = 16$  and  $p = 0.3$  is:**

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

**Q101. The area under  $y = x^3$  from  $x = 0$  to  $x = 4$  is:**

- (A) 175.0
- (B) 169.4
- (C) 64.4
- (D) 28.7

**Q102. The mean of a binomial distribution with  $n = 17$  and  $p = 0.8$  is:**

- (A) 20.7
- (B) 34.5
- (C) 33.0
- (D) 21.2

**Q103. The value of integral  $\sin^4(x) dx$  from 0 to  $\pi/2$  is:**

- (A)  $9\pi/16$
- (B)  $9\pi/32$
- (C)  $12\pi/32$
- (D)  $4\pi/4$

**Q104. The distance between parallel lines  $4x + 5y = 10$  and  $3x + 2y = 15$  is:**

- (A) 3.07
- (B) 3.69
- (C) 2.06
- (D) 3.17

**Q105. If  $z = 1 + 3i$ , then  $|z| =$**

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

**Q106. The sum of first 46 terms of AP with  $a = 2$ ,  $d = 4$  is:**

- (A) 4766
- (B) 3787
- (C) 788
- (D) 4165

**Q107. The distance between parallel lines  $2x + 5y = 8$  and  $3x + 3y = 12$  is:**

- (A) 1.43
- (B) 3.63
- (C) 3.09
- (D) 3.86

**Q108. If  $z = 3 + 1i$ , then  $|z| =$**

- (A) 6.05
- (B) 9.49
- (C) 4.01
- (D) 1.12

**Q109. If  $z = 1 + 3i$ , then  $|z| =$**

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

**Q110. The eccentricity of the ellipse  $x^2/10 + y^2/8 = 1$  is:**

- (A) 0.85
- (B) 0.69
- (C) 0.58
- (D) 0.71

**Q111. The eccentricity of the ellipse  $x^2/23 + y^2/14 = 1$  is:**

- (A) 0.48
- (B) 0.89
- (C) 0.81
- (D) 0.55

**Q112. The probability of getting exactly 4 heads in 8 tosses of a fair coin is:**

- (A)  $6/128$
- (B)  $21/128$
- (C)  $17/64$
- (D)  $18/32$

**Q113. The mean of a binomial distribution with  $n = 22$  and  $p = 0.4$  is:**

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

**Q114. The probability of getting exactly 3 heads in 6 tosses of a fair coin is:**

- (A)  $9/256$
- (B)  $14/32$
- (C)  $8/128$
- (D)  $44/256$

**Q115. The sum of first 47 terms of AP with  $a = 3$ ,  $d = 2$  is:**

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

**Q116. The sum of first 23 terms of AP with  $a = 5$ ,  $d = 1$  is:**

- (A) 351
- (B) 928
- (C) 2162
- (D) 4013

**Q117. Integral of  $(x^3 + 5) dx$  from 0 to 3 equals:**

- (A) 75
- (B) 90
- (C) 26
- (D) 60

**Q118. The rank of the matrix  $\begin{bmatrix} 1,2,3 \\ 4,5,6 \\ 9,11,13 \end{bmatrix}$  is:**

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

**Q119. If  $\det(A) = 1$  and  $A$  is  $3 \times 3$ , then  $\det(2A) =$**

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

**Q120. The sum of first 22 terms of AP with  $a = 4$ ,  $d = 2$  is:**

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

**Q121. The distance between parallel lines  $4x + 5y = 4$  and  $4x + 3y = 11$  is:**

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

**Q122. The equation of tangent to  $y = x^2$  at  $x = 3$  is:**

- (A)  $y = 5x - 19$
- (B)  $y = 6x - 8$
- (C)  $y = 7x - 15$
- (D)  $y = 12x - 11$

**Q123. The derivative of  $x^6 \sin(x)$  at  $x = \pi$  is:**

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

**Q124. The mean of a binomial distribution with  $n = 26$  and  $p = 0.3$  is:**

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

**Q125. The eccentricity of the ellipse  $x^2/21 + y^2/15 = 1$  is:**

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

**Q126.**  $\lim_{x \rightarrow 0} \sin(6x)/x =$

- (A) 4
- (B) 2
- (C) 5
- (D) 6

**Q127.** The eccentricity of the ellipse  $x^2/12 + y^2/11 = 1$  is:

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

**Q128.** The area under  $y = x^4$  from  $x = 0$  to  $x = 4$  is:

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

**Q129.** The mean of a binomial distribution with  $n = 48$  and  $p = 0.5$  is:

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

**Q130.** 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

**Q131.** The number of ways to arrange 6 distinct objects in a circle is:

- (A) 4752
- (B) 1443
- (C) 2258
- (D) 1423

**Q132.** The distance between parallel lines  $2x + 2y = 1$  and  $5x + 2y = 11$  is:

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

**Q133.** The probability of getting exactly 3 heads in 6 tosses of a fair coin is:

- (A)  $21/256$
- (B)  $39/128$
- (C)  $4/128$
- (D)  $2/64$

**Q134. The value of integral  $\sin^4(x)$  dx from 0 to  $\pi/2$  is:**

- (A)  $9\pi/16$
- (B)  $15\pi/16$
- (C)  $5\pi/4$
- (D)  $3\pi/8$

**Q135. The derivative of  $x^2 \sin(x)$  at  $x = \pi$  is:**

- (A) -2.55
- (B) -17.58
- (C) 6.11
- (D) -7.74

### Section 3: Reading (40 Questions)

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

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

**Q137. The author includes the example in paragraph 2 in order to:**

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

**Q138. Which best describes the relationship between the two passages?**

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

**Q139. The author includes the example in paragraph 2 in order to:**

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

**Q140. The graph supports which claim from the passage?**

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

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

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

**Q142. Which word best completes: 'The scientist's \_\_\_\_ approach led to groundbreaking discoveries.'**

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

**Q143. The passage implies that the outcome was:**

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

**Q144. The word 'pragmatic' most nearly means:**

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

**Q145. The author's central claim is that:**

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

**Q146. Which choice most effectively combines the underlined sentences?**

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

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

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

**Q148. The word 'ubiquitous' most nearly means:**

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

**Q149. The word 'pernicious' most nearly means:**

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

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

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

**Q151. 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

**Q152. In the passage, the author's tone can best be described as:**

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

**Q153. The passage's organizational pattern is best described as:**

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

**Q154. Which revision would most improve sentence clarity?**

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

**Q155. The graph supports which claim from the passage?**

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

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

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

**Q157. Which choice most effectively combines the underlined sentences?**

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

**Q158. The primary purpose of the passage is to:**

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

**Q159. Which word best completes: 'The scientist's \_\_\_\_ approach led to groundbreaking discoveries.'**

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

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

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

**Q161. The word 'ameliorate' most nearly means:**

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

**Q162. Which evidence best supports the author's claim?**

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

**Q163. Which revision would most improve sentence clarity?**

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

**Q164. The function of paragraph 3 is to:**

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

**Q165. In the passage, the author's tone can best be described as:**

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

**Q166. The primary purpose of the passage is to:**

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

**Q167. The passage implies that the outcome was:**

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

**Q168. Which transition would best connect sentences 3 and 4?**

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

**Q169. The primary purpose of the passage is to:**

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

**Q170. Which rhetorical device does the author employ in line 15?**

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

**Q171. 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

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

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

**Q173. The word 'pragmatic' most nearly means:**

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

**Q174. The word 'ephemeral' most nearly means:**

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

**Q175. Which rhetorical device does the author employ in line 15?**

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

## Section 4: Science (40 Questions)

**Q176. The pH of a 0.1 M HCl solution is:**

- (A) 3
- (B) 2
- (C) 1
- (D) 4

**Q177. d-block elements show variable oxidation states because:**

- (A) Close energy of (n-1)d and ns orbitals
- (B) Filled d orbitals
- (C) Low ionization energy
- (D) Large atomic size

**Q178. The binding energy per nucleon of Fe-56 is approximately:**

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

**Q179. The current through a 11 ohm resistor connected to a 12 V battery is:**

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

**Q180. VSEPR theory predicts the shape of SF<sub>6</sub> as:**

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

**Q181. The rate of reaction doubles when temperature increases by:**

- (A) 50 K
- (B) 20 K
- (C) 5 K
- (D) 10 K

**Q182. Lanthanide contraction is caused by:**

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

**Q183. A force of 64 N acts on a 17 kg body initially at rest. The velocity after 4 s is:**

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

**Q184. The entropy change for an irreversible process is:**

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

**Q185. A wire of resistance 11 ohm is bent into a circle. Effective resistance between diametrically opposite points is:**

- (A) 4 ohm
- (B) 2 ohm
- (C) 7 ohm
- (D) 3 ohm

**Q186. Gibbs free energy change for a spontaneous process is:**

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

**Q187. The de Broglie wavelength of an electron accelerated through 50 V is approximately:**

- (A) 1.20 Angstrom
- (B) 1.53 Angstrom
- (C) 2.14 Angstrom
- (D) 2.64 Angstrom

**Q188. Which metal is extracted by thermite process?**

- (A) Iron
- (B) Sodium
- (C) Chromium
- (D) Aluminium

**Q189. The shape of  $\text{XeF}_4$  is:**

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

**Q190. The work function of a metal is 1.6 eV. The threshold frequency is:**

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

**Q191. The colour of  $\text{KMnO}_4$  is due to:**

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

**Q192. Wurtz reaction involves coupling of:**

- (A) Alkyl halides with Na
- (B) Aryl halides with Cu
- (C) Acids with  $\text{SOCl}_2$
- (D) Aldehydes with NaOH

**Q193. 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) 51 cm
- (C) 45 cm
- (D) 15 cm

**Q194. The reagent for converting aldehyde to carboxylic acid is:**

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

**Q195. The crystal field splitting energy in octahedral complex is:**

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

**Q196. 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) 4174 N
- (C) 3916 N
- (D) 16867 N

**Q197. The ore of aluminium is:**

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

**Q198. The binding energy per nucleon of Fe-56 is approximately:**

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

**Q199. The cell potential for Zn | Zn<sup>2+</sup> || Cu<sup>2+</sup> | Cu cell is:**

- (A) 0.76 V
- (B) -0.76 V
- (C) 1.10 V
- (D) 0.34 V

**Q200. For an endothermic reaction, increasing temperature:**

- (A) No effect
- (B) Increases equilibrium constant
- (C) Decreases rate
- (D) Decreases equilibrium constant

**Q201. In photoelectric effect, the stopping potential for light of wavelength 252 nm on a metal with work function 3.7 eV is:**

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

**Q202. For a first-order reaction with  $k = 0.085 \text{ s}^{-1}$ , the half-life is:**

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

**Q203. Which element has the highest electronegativity?**

- (A) Nitrogen
- (B) Chlorine
- (C) Fluorine
- (D) Oxygen

**Q204. The hybridization of Ni in [Ni(CN)<sub>4</sub>]<sup>2-</sup> is:**

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

**Q205. A block of mass 6 kg slides down a frictionless incline of angle 37 degrees. The acceleration is:**

- (A) 5.2 m/s<sup>2</sup>
- (B) 6.6 m/s<sup>2</sup>
- (C) 6.8 m/s<sup>2</sup>
- (D) 4.1 m/s<sup>2</sup>

**Q206. Two capacitors 9 uF and 8 uF are connected in series. The equivalent capacitance is:**

- (A) 2.11 uF
- (B) 2.76 uF
- (C) 3.56 uF
- (D) 4.24 uF

**Q207. Two capacitors 9 uF and 9 uF are connected in series. The equivalent capacitance is:**

- (A) 4.96 uF
- (B) 3.34 uF
- (C) 1.37 uF
- (D) 4.38 uF

**Q208. A spring with  $k = 494 \text{ N/m}$  is compressed by 0.17 m. The stored PE is:**

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

**Q209. The hybridization of C in acetylene is:**

- (A)  $sp^2$
- (B)  $sp$
- (C)  $sp^3$
- (D)  $sp^3d$

**Q210. According to Raoult's law, the vapour pressure of a solvent in solution is:**

- (A)  $p = RT/V$
- (B)  $p = p_0 \cdot x_{\text{solvent}}$
- (C)  $p = p_0 \cdot x_{\text{solute}}$
- (D)  $p = p_0 / x_{\text{solvent}}$

**Q211. Two masses 7 kg and 11 kg are connected by a string over a frictionless pulley. The acceleration of the system is:**

- (A)  $2.57 \text{ m/s}^2$
- (B)  $3.18 \text{ m/s}^2$
- (C)  $5.61 \text{ m/s}^2$
- (D)  $3.15 \text{ m/s}^2$

**Q212. The IUPAC name of neopentane is:**

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

**Q213. The equilibrium constant  $K_p$  and  $K_c$  are related by:**

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

**Q214. For an ideal gas,  $C_p - C_v$  equals:**

- (A)  $R$  (8.314 J/mol K)
- (B) 0
- (C)  $R/2$
- (D)  $2R$

**Q215. An ideal gas at 295 K is heated at constant pressure to 678 K. The ratio of final to initial volume is:**

- (A) 1.5
- (B) 2.3
- (C) 1.5
- (D) 2.4

# Answer Key

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

Q211: (B)

Q212: (C)

Q213: (C)

Q214: (A)

Q215: (A)

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