

# ACT

## Sample Question Paper - 2024

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

#### Q2. The word 'ephemeral' most nearly means:

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

#### Q3. According to the passage, the primary cause was:

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

#### Q4. The word 'ameliorate' most nearly means:

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

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

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

**Q6. The function of paragraph 3 is to:**

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

**Q7. The passage's organizational pattern is best described as:**

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

**Q8. 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

**Q9. Which revision would most improve sentence clarity?**

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

**Q10. The word 'pragmatic' most nearly means:**

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

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

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

**Q12. The author includes the example in paragraph 2 in order to:**

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

**Q13. The primary purpose of the passage is to:**

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

**Q14. The passage implies that the outcome was:**

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

**Q15. Which best describes the relationship between the two passages?**

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

**Q16. The passage's organizational pattern is best described as:**

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

**Q17. Which best describes the relationship between the two passages?**

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

**Q18. The primary purpose of the passage is to:**

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

**Q19. In the passage, the author's tone can best be described as:**

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

**Q20. The word 'ubiquitous' most nearly means:**

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

**Q21. Which choice most effectively combines the underlined sentences?**

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

**Q22. Which best describes the relationship between the two passages?**

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

**Q23. Which evidence best supports the author's claim?**

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

**Q24. Which sentence best summarizes the main idea?**

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

**Q25. The primary purpose of the passage is to:**

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

**Q26. The primary purpose of the passage is to:**

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

**Q27. In the passage, the author's tone can best be described as:**

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

**Q28. According to the passage, the primary cause was:**

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

**Q29. The word 'ameliorate' most nearly means:**

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

**Q30. The word 'ubiquitous' most nearly means:**

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

**Q31. Which choice most effectively combines the underlined sentences?**

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

**Q32. Which sentence best summarizes the main idea?**

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

**Q33. In the passage, the author's tone can best be described as:**

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

**Q34. The graph supports which claim from the passage?**

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

**Q35. Which evidence best supports the author's claim?**

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

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

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

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

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

**Q38. The author's central claim is that:**

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

**Q39. The author's central claim is that:**

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

**Q40. The author uses the metaphor to:**

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

**Q41. Which choice most effectively combines the underlined sentences?**

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

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

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

**Q43. Which rhetorical device does the author employ in line 15?**

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

**Q44. The passage's organizational pattern is best described as:**

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

**Q45. Which word best completes: 'The scientist's \_\_\_\_ approach led to groundbreaking discoveries.'**

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

**Q46. The graph supports which claim from the passage?**

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

**Q47. The word 'pragmatic' most nearly means:**

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

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

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

**Q49. The function of paragraph 3 is to:**

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

**Q50. In the passage, the author's tone can best be described as:**

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

**Q51. Which evidence best supports the author's claim?**

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

**Q52. Which best describes the relationship between the two passages?**

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

**Q53. The author's central claim is that:**

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

**Q54. The word 'ephemeral' most nearly means:**

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

**Q55. Which word best completes: 'The scientist's \_\_\_\_ approach led to groundbreaking discoveries.'**

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

**Q56. The graph supports which claim from the passage?**

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

**Q57. Which sentence best summarizes the main idea?**

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

**Q58. The word 'pernicious' most nearly means:**

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

**Q59. The graph supports which claim from the passage?**

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

**Q60. The author uses the metaphor to:**

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

**Q61. Which sentence best summarizes the main idea?**

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

**Q62. The primary purpose of the passage is to:**

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

**Q63. Which evidence best supports the author's claim?**

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

**Q64. Which choice most effectively combines the underlined sentences?**

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

**Q65. Which rhetorical device does the author employ in line 15?**

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

**Q66. The word 'pernicious' most nearly means:**

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

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

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

**Q68. The passage implies that the outcome was:**

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

**Q69. Which transition would best connect sentences 3 and 4?**

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

**Q70. The passage implies that the outcome was:**

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

**Q71. The graph supports which claim from the passage?**

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

**Q72. Which choice provides the most relevant detail?**

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

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

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

**Q74. Which choice provides the most relevant detail?**

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

**Q75. Which transition would best connect sentences 3 and 4?**

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

## Section 2: Math (60 Questions)

**Q76. The probability of getting exactly 3 heads in 7 tosses of a fair coin is:**

- (A)  $\frac{26}{64}$
- (B)  $\frac{19}{64}$
- (C)  $\frac{36}{64}$
- (D)  $\frac{41}{256}$

**Q77. The mean of a binomial distribution with  $n = 17$  and  $p = 0.8$  is:**

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

**Q78.**  $\lim_{x \rightarrow 0} \sin(3x)/x =$

- (A) 3
- (B) 1
- (C) 6
- (D) 6

**Q79.** Integral of  $(x^2 + 5) dx$  from 0 to 2 equals:

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

**Q80.** Integral of  $(x^3 + 6) dx$  from 0 to 1 equals:

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

**Q81.** The equation of tangent to  $y = x^3$  at  $x = 1$  is:

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

**Q82.** Integral of  $(x^4 + 6) dx$  from 0 to 5 equals:

- (A) 66
- (B) 44
- (C) 14
- (D) 50

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

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

**Q84.** The mean of a binomial distribution with  $n = 45$  and  $p = 0.6$  is:

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

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

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

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

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

**Q87. The distance between parallel lines  $4x + 3y = 7$  and  $4x + 5y = 11$  is:**

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

**Q88. The sum of first 46 terms of AP with  $a = 2$ ,  $d = 4$  is:**

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

**Q89. The equation of tangent to  $y = x^3$  at  $x = 2$  is:**

- (A)  $y = 8x - 5$
- (B)  $y = 10x - 16$
- (C)  $y = 7x - 1$
- (D)  $y = 4x - 3$

**Q90. The rank of the matrix  $[[1,2,3],[4,5,6],[7,10,13]]$  is:**

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

**Q91. The mean of a binomial distribution with  $n = 30$  and  $p = 0.4$  is:**

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

**Q92. The distance between parallel lines  $4x + 3y = 3$  and  $5x + 3y = 13$  is:**

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

**Q93. If  $\det(A) = 6$  and  $A$  is  $3 \times 3$ , then  $\det(2A) =$**

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

**Q94. The probability of getting exactly 4 heads in 8 tosses of a fair coin is:**

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

**Q95. If  $z = 1 + 5i$ , then  $|z| =$**

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

**Q96. The sum of first 14 terms of AP with  $a = 1$ ,  $d = 2$  is:**

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

**Q97. The value of integral  $\sin^4(x) dx$  from 0 to  $\pi/2$  is:**

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

**Q98. Integral of  $(x^3 + 6) dx$  from 0 to 2 equals:**

- (A) 41
- (B) 59
- (C) 38
- (D) 36

**Q99. The mean of a binomial distribution with  $n = 16$  and  $p = 0.3$  is:**

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

**Q100. If  $\det(A) = 10$  and  $A$  is  $3 \times 3$ , then  $\det(2A) =$**

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

**Q101. The distance between parallel lines  $2x + 5y = 8$  and  $3x + 3y = 12$  is:**

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

**Q102. The rank of the matrix  $\begin{bmatrix} 1,2,3 \\ 4,5,6 \\ 9,11,13 \end{bmatrix}$  is:**

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

**Q103. The eccentricity of the ellipse  $x^2/11 + y^2/11 = 1$  is:**

- (A) 0.58
- (B) 0.86
- (C) 0.67
- (D) 0.71

**Q104. The distance between parallel lines  $3x + 4y = 10$  and  $3x + 5y = 19$  is:**

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

**Q105. Integral of  $(x^3 + 5) dx$  from 0 to 3 equals:**

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

**Q106. The equation of tangent to  $y = x^4$  at  $x = 2$  is:**

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

**Q107. If  $z = 1 + 3i$ , then  $|z| =$**

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

**Q108.  $\lim_{x \rightarrow 0} \sin(6x)/x =$**

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

**Q109. The derivative of  $x^2 \sin(x)$  at  $x = \pi$  is:**

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

**Q110. The probability of getting exactly 3 heads in 6 tosses of a fair coin is:**

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

**Q111. The eccentricity of the ellipse  $x^2/23 + y^2/8 = 1$  is:**

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

**Q112. The distance between parallel lines  $4x + 5y = 10$  and  $3x + 2y = 15$  is:**

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

**Q113. The sum of first 23 terms of AP with  $a = 5$ ,  $d = 1$  is:**

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

**Q114. The sum of first 33 terms of AP with  $a = 5$ ,  $d = 4$  is:**

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

**Q115.  $\lim_{x \rightarrow 0} \sin(2x)/x =$**

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

**Q116. The derivative of  $x^6 \sin(x)$  at  $x = \pi$  is:**

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

**Q117. The sum of first 22 terms of AP with  $a = 4$ ,  $d = 2$  is:**

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

**Q118. The equation of tangent to  $y = x^3$  at  $x = 3$  is:**

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

**Q119. The area under  $y = x^4$  from  $x = 0$  to  $x = 2$  is:**

- (A) 174.8
- (B) 192.7
- (C) 87.1
- (D) 100.1

**Q120. The probability of getting exactly 2 heads in 8 tosses of a fair coin is:**

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

**Q121. The number of ways to arrange 5 distinct objects in a circle is:**

- (A) 3544
- (B) 1134
- (C) 1520
- (D) 3464

**Q122. If  $\det(A) = 3$  and  $A$  is  $3 \times 3$ , then  $\det(2A) =$**

- (A) 48
- (B) 60
- (C) 28
- (D) 56

**Q123. The area under  $y = x^3$  from  $x = 0$  to  $x = 5$  is:**

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

**Q124. The sum of first 47 terms of AP with  $a = 3$ ,  $d = 2$  is:**

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

**Q125. If  $z = 5 + 1i$ , then  $|z| =$**

- (A) 8.08
- (B) 3.93
- (C) 2.74
- (D) 4.95

**Q126. The value of integral  $\sin^2(x)$  dx from 0 to  $\pi/2$  is:**

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

**Q127. The probability of getting exactly 4 heads in 8 tosses of a fair coin is:**

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

**Q128.  $\lim_{x \rightarrow 0} \sin(2x)/x =$**

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

**Q129. The number of ways to arrange 6 distinct objects in a circle is:**

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

**Q130. If  $z = 1 + 4i$ , then  $|z| =$**

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

**Q131. If  $z = 4 + 2i$ , then  $|z| =$**

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

**Q132. The equation of tangent to  $y = x^4$  at  $x = 2$  is:**

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

**Q133. The derivative of  $x^4 \sin(x)$  at  $x = \pi$  is:**

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

**Q134. The equation of tangent to  $y = x^2$  at  $x = 3$  is:**

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

**Q135. The area under  $y = x^4$  from  $x = 0$  to  $x = 4$  is:**

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

### Section 3: Reading (40 Questions)

**Q136. The graph supports which claim from the passage?**

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

**Q137. The word 'pragmatic' most nearly means:**

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

**Q138. The passage's organizational pattern is best described as:**

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

**Q139. 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

**Q140. The word 'ubiquitous' most nearly means:**

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

**Q141. Which choice most effectively combines the underlined sentences?**

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

**Q142. The passage's organizational pattern is best described as:**

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

**Q143. The word 'ameliorate' most nearly means:**

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

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

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

**Q145. The primary purpose of the passage is to:**

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

**Q146. Which sentence best summarizes the main idea?**

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

**Q147. In the passage, the author's tone can best be described as:**

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

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

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

**Q149. Which revision would most improve sentence clarity?**

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

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

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

**Q151. The word 'ameliorate' most nearly means:**

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

**Q152. According to the passage, the primary cause was:**

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

**Q153. Which revision would most improve sentence clarity?**

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

**Q154. Which choice provides the most relevant detail?**

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

**Q155. The author's central claim is that:**

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

**Q156. The graph supports which claim from the passage?**

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

**Q157. Which rhetorical device does the author employ in line 15?**

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

**Q158. Which revision would most improve sentence clarity?**

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

**Q159. Which evidence best supports the author's claim?**

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

**Q160. Which best describes the relationship between the two passages?**

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

**Q161. Which evidence best supports the author's claim?**

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

**Q162. Which transition would best connect sentences 3 and 4?**

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

**Q163. According to the passage, the primary cause was:**

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

**Q164. Which rhetorical device does the author employ in line 15?**

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

**Q165. Which word best completes: 'The scientist's \_\_\_\_ approach led to groundbreaking discoveries.'**

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

**Q166. The word 'ubiquitous' most nearly means:**

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

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

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

**Q168. Which best describes the relationship between the two passages?**

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

**Q169. The word 'ubiquitous' most nearly means:**

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

**Q170. Which choice most effectively combines the underlined sentences?**

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

**Q171. The author uses the metaphor to:**

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

**Q172. The primary purpose of the passage is to:**

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

**Q173. In the passage, the author's tone can best be described as:**

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

**Q174. The primary purpose of the passage is to:**

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

**Q175. The word 'ephemeral' most nearly means:**

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

## Section 4: Science (40 Questions)

**Q176. The IUPAC name of neopentane is:**

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

**Q177. A solenoid of 145 turns and length 0.1 m carries current 4 A. The magnetic field inside is:**

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

**Q178. A convex lens of focal length 16 cm forms a real image of an object placed 22 cm away. The image distance is:**

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

**Q179. Hess's law states that:**

- (A) Enthalpy change is path independent
- (B) Volume is constant
- (C) Entropy always increases
- (D) Rate depends on concentration

**Q180. The crystal field splitting energy in octahedral complex is:**

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

**Q181. A spring with  $k = 494 \text{ N/m}$  is compressed by  $0.17 \text{ m}$ . The stored PE is:**

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

**Q182. The ore of aluminium is:**

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

**Q183. The current through a  $11 \text{ ohm}$  resistor connected to a  $12 \text{ V}$  battery is:**

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

**Q184. A body of mass  $4 \text{ kg}$  is moving in a circle of radius  $8 \text{ m}$  at  $19 \text{ m/s}$ . The centripetal force is:**

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

**Q185. The magnetic moment of  $\text{Fe}^{2+}$  ( $d6$ ) in weak field is:**

- (A) 4.9 BM (4 unpaired)
- (B) 0 BM
- (C) 2.83 BM
- (D) 5.9 BM

**Q186. For an endothermic reaction, increasing temperature:**

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

**Q187. An electron moves with velocity  $1 \times 10^6 \text{ m/s}$  perpendicular to a magnetic field of  $0.2 \text{ T}$ . The radius of its path is:**

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

**Q188. The hybridization of C in acetylene is:**

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

**Q189. A ball is dropped from height 90 m. Its velocity just before hitting the ground is:**

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

**Q190. The work function of a metal is 3.3 eV. The threshold frequency is:**

- (A)  $9.88 \times 10^{14}$  Hz
- (B)  $7.25 \times 10^{14}$  Hz
- (C)  $10.83 \times 10^{14}$  Hz
- (D)  $6.65 \times 10^{14}$  Hz

**Q191. Two masses 7 kg and 11 kg are connected by a string over a frictionless pulley. The acceleration of the system is:**

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

**Q192. The colour of  $\text{KMnO}_4$  is due to:**

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

**Q193. 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) 16867 N
- (D) 3916 N

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

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

**Q195. According to Raoult's law, the vapour pressure of a solvent in solution is:**

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

**Q196. A Carnot engine operates between 765 K and 254 K. Its efficiency is:**

- (A) 58%
- (B) 30%
- (C) 52%
- (D) 65%

**Q197. The van't Hoff factor for NaCl is approximately:**

- (A) 3
- (B) 1
- (C) 2
- (D) 0.5

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

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

**Q199. Two capacitors 9  $\mu$ F and 9  $\mu$ F are connected in series. The equivalent capacitance is:**

- (A) 3.34  $\mu$ F
- (B) 4.96  $\mu$ F
- (C) 1.37  $\mu$ F
- (D) 4.38  $\mu$ F

**Q200. In photoelectric effect, the stopping potential for light of wavelength 260 nm on a metal with work function 2.9 eV is:**

- (A) 3.39 V
- (B) 2.43 V
- (C) 0.69 V
- (D) 2.94 V

**Q201. The reagent for converting aldehyde to carboxylic acid is:**

- (A) Zn-Hg / HCl
- (B) NaBH<sub>4</sub>
- (C) KMnO<sub>4</sub> / K<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>
- (D) LiAlH<sub>4</sub>

**Q202. 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

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

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

**Q204. A radioactive substance has half-life 14 days. The fraction remaining after 54 days is:**

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

**Q205. Which reagent is used for Baeyer-Villiger oxidation?**

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

**Q206. Wurtz reaction involves coupling of:**

- (A) Aryl halides with Cu
- (B) Acids with SOCl<sub>2</sub>
- (C) Alkyl halides with Na
- (D) Aldehydes with NaOH

**Q207. Williamson's synthesis is used to prepare:**

- (A) Ethers
- (B) Amines
- (C) Esters
- (D) Alcohols

**Q208. 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)  $10.62 \times 10^{14}$  Hz
- (D)  $11.96 \times 10^{14}$  Hz

**Q209. For an ideal gas,  $C_p - C_v$  equals:**

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

**Q210. The shape of XeF<sub>4</sub> is:**

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

**Q211. The focal length of a concave mirror is 17 cm. An object at 30 cm forms image at:**

- (A) 32 cm, real inverted
- (B) 17 cm, real inverted
- (C) 23 cm, real inverted
- (D) 43 cm, real inverted

**Q212. Two capacitors 9  $\mu$ F and 8  $\mu$ F are connected in series. The equivalent capacitance is:**

- (A) 4.24  $\mu$ F
- (B) 2.11  $\mu$ F
- (C) 3.56  $\mu$ F
- (D) 2.76  $\mu$ F

**Q213. The lightest noble gas is:**

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

**Q214. The cell potential for  $\text{Zn}|\text{Zn}^{2+}||\text{Cu}^{2+}|\text{Cu}$  cell is:**

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

**Q215. A projectile is launched at 45 degrees with initial velocity 22 m/s. The time of flight is approximately:**

- (A) 2.9 s
- (B) 3.9 s
- (C) 3.3 s
- (D) 4.6 s

# Answer Key

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

Q211: (D)

Q212: (A)

Q213: (A)

Q214: (D)

Q215: (D)

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