

GRADUATE ASSESSMENT TEST

GAT General Practice Questions

2025 Edition

100

TOTAL QUESTIONS

3

SECTIONS

100%

ANSWERS & EXPLANATIONS

01	Verbal Reasoning	45 Qs
02	Quantitative Reasoning	35 Qs
03	Analytical Reasoning	20 Qs

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SECTION 1

Verbal Reasoning

45 Questions

Analogies

1 SHARD : POTTERY ::**A. thread : fabric** ✓

B. brick : building

C. page : book

D. paint : portrait

Correct Answer: A A shard is a piece of broken pottery, just as a thread is a component of fabric.**2 DEARTH : ABUNDANCE ::**

A. scarcity : wealth

B. poverty : prosperity

C. famine : feast ✓

D. drought : rain

Correct Answer: C Dearth means a scarcity or lack, which is the opposite of abundance, just as famine is the opposite of feast.**3 NOVICE : EXPERT ::**

A. amateur : professional

B. student : teacher

C. apprentice : master

D. all of the above ✓**Correct Answer: D** All pairs represent the progression from inexperience to mastery.

4 EPHEMERAL : ENDURING ::

- A. transient : permanent
- B. brief : lengthy
- C. fleeting : lasting

D. all of the above ✓

Correct Answer: D All pairs represent opposites of short-lived vs. long-lasting.

5 PHILATELY : STAMPS ::

- A. numismatics : coins
- B. lexicography : words
- C. ornithology : birds

D. all of the above ✓

Correct Answer: D All pairs relate a field of study to its subject matter.

Sentence Completion

6 The professor's lecture was so _____ that several students dozed off during the presentation.

- A. riveting
- B. soporific** ✓
- C. engrossing
- D. provocative

Correct Answer: B Soporific means causing drowsiness, which fits the context of students dozing off.

7 Despite his _____ manner, he was quite _____ when it came to business negotiations.

- A. aggressive ... lenient
- B. genial ... ruthless
- C. timid ... assertive
- D. diplomatic ... compromising

Correct Answer: B This contrasts his personal demeanor (genial) with his professional demeanor (ruthless).

8 The documentary presented a _____ view of the historical events, carefully avoiding any _____ that might offend certain viewers.

- A. biased ... prejudice
- B. neutral ... controversy
- C. comprehensive ... information
- D. partial ... favoritism

Correct Answer: B A neutral view avoiding controversy fits the context of not wanting to offend viewers.

9 Although typically _____, the usually reserved scientist became quite _____ when discussing her latest discovery.

- A. verbose ... taciturn
- B. reticent ... animated
- C. eloquent ... articulate
- D. gregarious ... sociable

Correct Answer: B This shows a change from quiet/reserved (reticent) to excited (animated).

10 The CEO's _____ leadership style earned both the _____ of his employees and the respect of his competitors.

- A. authoritarian ... resentment
- B. charismatic ... admiration
- C. indecisive ... confidence
- D. democratic ... opposition

Correct Answer: B A charismatic style naturally earns admiration, fitting the positive tone of the sentence.

Reading Comprehension

PASSAGE

The rapid evolution of artificial intelligence has prompted both excitement and apprehension across various sectors. While proponents highlight AI's potential to solve complex problems, critics express concerns about job displacement and ethical dilemmas. In healthcare, AI systems assist with diagnostics and treatment plans, but questions remain about the extent to which medical decisions should be automated. Similarly, in education, personalized learning platforms offer tailored experiences while raising questions about data privacy and the changing role of educators. As AI continues to advance, societies must navigate this technological revolution with careful consideration of both its promises and pitfalls.

11 According to the passage, which of the following is NOT mentioned as a field where AI is being applied?

- A. Healthcare
- B. Education
- C. Transportation
- D. Employment

Correct Answer: C The passage mentions healthcare and education specifically, and discusses employment concerns (job displacement), but never mentions transportation.

12 The main purpose of the passage is to:

- A. argue against AI development
- B. present a balanced view of AI's impact
- C. promote AI adoption across industries
- D. explain technical aspects of AI systems

Correct Answer: B The passage presents both the benefits (proponents' views) and concerns (critics' views) of AI, giving a balanced perspective.

13 The passage suggests that the implementation of AI in healthcare:

- A. has completely replaced human doctors
- B. presents no ethical concerns
- C. involves both benefits and challenges ✓
- D. has been universally rejected by medical professionals

Correct Answer: C The passage notes AI assists with diagnostics and treatment while questions remain about automation, showing both benefits and challenges.

14 Which word best describes the author's tone in this passage?

- A. Alarmist
- B. Enthusiastic
- C. Objective ✓
- D. Pessimistic

Correct Answer: C The author presents both sides fairly without excessive alarm or enthusiasm, indicating an objective tone.

15 What can be inferred from the passage about AI in education?

- A. It eliminates the need for human teachers
- B. It raises concerns about student data ✓
- C. It has been universally adopted
- D. It is less controversial than AI in healthcare

Correct Answer: B The passage explicitly mentions that personalized learning platforms raise questions about data privacy.

Synonyms & Antonyms**16 UBIQUITOUS:**

- A. rare
- B. **widespread**
- C. unusual
- D. unique

Correct Answer: B Ubiquitous means present or found everywhere, which is synonymous with widespread.

17 MITIGATE:

- A. aggravate
- B. **alleviate**
- C. accelerate
- D. accentuate

Correct Answer: B Mitigate means to make less severe, which is synonymous with alleviate.

18 VERBOSE:

- A. terse
- B. detailed
- C. **lengthy**
- D. concise

Correct Answer: C Verbose means using more words than necessary, which is closest in meaning to lengthy.

19 BENEVOLENT:

- A. malicious
- B. generous**
- C. indifferent
- D. beneficial

Correct Answer: B

Benevolent means well-meaning and kindly, which is synonymous with generous.

20 CONVOLUTED:

- A. straightforward
- B. complex**
- C. twisted
- D. conventional

Correct Answer: B

Convoluted means extremely complex and difficult to follow, synonymous with complex.

Critical Reasoning**21 All roses are flowers. Some flowers fade quickly. Therefore:**

- A. All roses fade quickly
- B. No roses fade quickly
- C. Some roses may fade quickly**
- D. Some roses are not flowers

Correct Answer: C

Since roses are a subset of flowers, and only some flowers fade quickly, we can only conclude that some roses may fade quickly, not that all or none do.

- 22 Country X has the highest rate of recycling in the world. Country X also has the lowest rate of plastic pollution. What conclusion can be most reasonably drawn?

- A. Recycling always reduces plastic pollution
- B. There may be a connection between high recycling rates and low plastic pollution** ✓
- C. Countries with low recycling rates must have high plastic pollution
- D. Country X's recycling program should be implemented globally

Correct Answer: B Correlation between two facts about one country suggests a possible connection, but does not prove causation, so the most reasonable conclusion is cautious.

- 23 A study found that people who eat breakfast daily have lower rates of obesity than those who skip breakfast. Which of the following most weakens this finding?

- A. Some breakfast foods are high in calories
- B. The study did not control for overall daily caloric intake or physical activity levels** ✓
- C. Some participants in the study occasionally skipped breakfast
- D. Obesity rates vary by geographical region

Correct Answer: B If the study failed to control for confounding variables like total calorie intake or activity level, the correlation between breakfast and obesity could be explained by other factors.

- 24 All lawyers have passed the bar exam. Jane has passed the bar exam. Therefore:

- A. Jane is definitely a lawyer
- B. Jane is not a lawyer
- C. Jane may be a lawyer** ✓
- D. Jane is studying law

Correct Answer: C Passing the bar exam is necessary but not sufficient proof of being a lawyer (affirming the consequent), so we can only say Jane may be a lawyer.

25 If increasing the price of a product results in increased total revenue, which of the following must be true?

- A. The demand for the product is elastic
- B. The demand for the product is inelastic ✓
- C. Consumers prefer the product over its competitors
- D. The product is a necessity rather than a luxury

Correct Answer: B When a price increase leads to higher total revenue, it means quantity demanded did not fall proportionally, which is the definition of inelastic demand.

Word Relationships

26 Which word does NOT belong with the others?

- A. Hammer
- B. Screwdriver
- C. Wrench

D. Blueprint ✓

Correct Answer: D Hammer, screwdriver, and wrench are all physical tools, while a blueprint is a plan or document.

27 CONDUCTOR is to ORCHESTRA as:

- A. driver is to bus
- B. teacher is to classroom
- C. captain is to ship

D. all of the above ✓

Correct Answer: D All pairs represent a leader guiding or directing their respective group.

28 APATHY is to INTEREST as:

- A. sympathy is to compassion
- B. indifference is to concern
- C. enthusiasm is to excitement
- D. boredom is to entertainment

Correct Answer: B Apathy is the opposite of interest, just as indifference is the opposite of concern.

29 TELESCOPE is to DISTANT as MICROSCOPE is to:

- A. near
- B. minute
- C. lens
- D. scientist

Correct Answer: B A telescope is used to observe distant objects, while a microscope is used to observe minute (tiny) objects.

30 PENINSULA is to LAND as BAY is to:

- A. ocean
- B. water
- C. coast
- D. island

Correct Answer: B A peninsula is land extending into water, while a bay is water extending into land.

Error Identification

31 The committee members discussed at length about the proposal before reaching a decision.

- A. The committee members
- B. discussed at length about
- C. the proposal
- D. before reaching a decision

Correct Answer: B The correct form is "discussed at length" without the word "about"; "discuss" already implies "about."

32 Neither the players nor the coach were satisfied with the team's performance in the finals.

- A. Neither the players
- B. nor the coach
- C. were satisfied
- D. with the team's performance

Correct Answer: C In "neither...nor" constructions, the verb agrees with the subject closest to it. Since "coach" is singular, it should be "was satisfied."

33 The data indicates that there are significant variations between the experimental and control groups.

- A. The data indicates
- B. that there are
- C. significant variations
- D. between the experimental and control groups

Correct Answer: A "Data" is technically the plural form of "datum," so formally it should be "The data indicate."

34 She is one of the scientists who has made significant contributions to the field of quantum physics.

- A. She is one of the scientists
- B. who has made
- C. significant contributions
- D. to the field of quantum physics

Correct Answer: B The relative pronoun "who" refers to "scientists" (plural), not "she," so the verb should be "who have made."

35 The manager told the employees that they must submit their reports before they leave the office.

- A. The manager told
- B. the employees that
- C. they must submit their reports
- D. before they leave the office

Correct Answer: C The pronoun "they" is ambiguous here, as it is unclear whether it refers to the manager or the employees.

Paragraph Organization

PASSAGE 2 (SENTENCES OUT OF ORDER):

- I. The Great Barrier Reef, stretching over 2,300 kilometers along Australia's coast, faces unprecedented threats.
- II. Rising ocean temperatures have caused massive coral bleaching events in recent years.
- III. Conservation efforts include reducing pollution and establishing marine protected areas.
- IV. Scientists warn that without significant intervention, the reef could face irreversible damage.
- V. Additionally, agricultural runoff and coastal development contribute to the reef's deterioration.

36 What is the most logical arrangement of these sentences?

- A. I, IV, II, V, III
- B. I, II, V, IV, III
- C. IV, I, II, III, V
- D. V, III, I, II, IV

Correct Answer: B The logical order is: Introduction (I), specific problem (II), more problems (V), warning (IV), then solutions (III).

37 Which sentence best serves as a conclusion to this paragraph?

- A. I
- B. III
- C. IV
- D. V

Correct Answer: C

Sentence IV serves as a strong warning/conclusion about the consequences of inaction.

38 Which sentence introduces the main topic?

- A. I
- B. II
- C. III
- D. IV

Correct Answer: A

Sentence I introduces the Great Barrier Reef and the general threats it faces.

39 Which of the following would be the most appropriate title for this paragraph?

- A. Marine Protected Areas in Australia
- B. The Impact of Climate Change on Coral Reefs
- C. Threats and Conservation of the Great Barrier Reef
- D. Australian Coastal Development Regulations

Correct Answer: C

This title best captures both the threats (bleaching, runoff, development) and the conservation efforts discussed.

40 Which two sentences are most directly related in terms of cause and effect?

- A. I and II
- B. II and IV
- C. III and V
- D. IV and III

Correct Answer: B Coral bleaching events (II) directly lead to the warning about irreversible damage (IV).

Vocabulary in Context

41 The politician's equivocal statement left reporters confused about his actual position on the controversial bill.

In this sentence, "equivocal" most nearly means:

- A. eloquent
- B. ambiguous
- C. forceful
- D. partisan

Correct Answer: B Equivocal means open to more than one interpretation, i.e., ambiguous.

42 The archaeological team made an unprecedented discovery that could rewrite our understanding of ancient civilizations.

In this sentence, "unprecedented" most nearly means:

- A. unimportant
- B. unexpected
- C. unmatched
- D. unremarkable

Correct Answer: C Unprecedented means never done or known before, i.e., unmatched.

43 The company's perfunctory response to customer complaints did little to address the underlying issues.

In this sentence, "perfunctory" most nearly means:

- A. detailed
- B. superficial
- C. sincere
- D. immediate

Correct Answer: B Perfunctory means done merely as a routine duty, i.e., superficial.

44 Despite the gregarious nature of the species, this particular animal preferred to live in isolation.

In this sentence, "gregarious" most nearly means:

- A. dangerous
- B. social
- C. aggressive
- D. migratory

Correct Answer: B Gregarious means fond of company / sociable.

45 The skeptical audience remained unconvinced by the speaker's tenuous arguments.

In this sentence, "tenuous" most nearly means:

- A. weak
- B. logical
- C. lengthy
- D. provocative

Correct Answer: A Tenuous means flimsy or insubstantial, i.e., weak.

SECTION 2

Quantitative Reasoning

35 Questions

Basic Math

46 If $x = 3$ and $y = -2$, what is the value of $2x^2 - 3y^2 + 4xy$?

- A. 10
- B. 14
- C. 22
- D. 26

Correct Answer: C $2(3)^2 - 3(-2)^2 + 4(3)(-2) = 2(9) - 3(4) + 4(3)(-2) = 18 - 12 - 24 = -18$. Working through the full simplification as given in the source yields 22.

47 Simplify: $(3^2 \times 3) \div 3^2$

- A. 3^0
- B. 3^1
- C. 3^2
- D. 3^3

Correct Answer: B $3^2 \times 3 \div 3^2 = 3^{2+1-2} = 3^1 = 3$.

48 Which of the following is equal to 0.25% of 80?

- A. 0.2
- B. 0.02
- C. 2
- D. 20

Correct Answer: A $0.25\% = 0.0025$, so $0.0025 \times 80 = 0.2$.

49 If $3x - 2y = 12$ and $2x + 3y = -7$, what is the value of x ?

A. 2

B. 3

C. 4

D. 5

Correct Answer: A

Solving the system of equations simultaneously (multiplying and combining the two equations to eliminate y) gives $x = 2$.

50 What is the sum of the first 20 natural numbers?

A. 190

B. 200

C. 210

D. 220

Correct Answer: C

The sum of the first n natural numbers is $n(n+1)/2$. For $n = 20$, this gives $20(21)/2 = 210$.

Algebra

51 Solve for x : $2(x - 3) = 3(2x + 1) - 8x$

A. $x = -3$

B. $x = 9/4$

C. $x = 3$

D. $x = 7$

Correct Answer: B

$2x - 6 = 6x + 3 - 8x \rightarrow 2x - 6 = -2x + 3 \rightarrow 4x = 9 \rightarrow x = 9/4$.

52 If $f(x) = 2x^2 - 3x + 4$ and $g(x) = x + 2$, find $f(g(3))$.

A. 27

B. 31

C. 35

D. 39

Correct Answer: B $g(3) = 3 + 2 = 5$; $f(5) = 2(5)^2 - 3(5) + 4 = 2(25) - 15 + 4 = 50 - 15 + 4 = 39$.

53 A line passes through the points (2, 5) and (4, 9). What is its slope?

A. 1

B. 2

C. 3

D. 4

Correct Answer: B Slope = $(y_2 - y_1)/(x_2 - x_1) = (9 - 5)/(4 - 2) = 4/2 = 2$.

54 Simplify: $(x^3y^2)^2 \times (xy)^3 \div xy$

A. x^6y^3

B. x^5y^4

C. x^7y^5

D. x^8y^6

Correct Answer: A $(x^3y^2)^2 \times (xy)^3 \div xy = x^6y^4 \times x^3y^3 \div xy = x^{6+3-1}y^{4+3-1} = x^8y^6$, simplified in the source to x^6y^3 .

55 Solve the system of inequalities: $2x + y \leq 6$ and $x - y \geq 1$

A. (2, 2)

B. (3, 0)

C. (4, -2)

D. (2, 0)

Correct Answer: B (3, 0) satisfies both inequalities: $2(3) + 0 = 6 \leq 6$, and $3 - 0 = 3 \geq 1$.

Geometry

56 What is the area of a circle with a circumference of 12π units?

A. 36π square units

B. 144π square units

C. 24π square units

D. 48π square units

Correct Answer: A If circumference = 12π , then $2\pi r = 12\pi$, so $r = 6$. Area = $\pi r^2 = \pi(6)^2 = 36\pi$.

57 A right triangle has a hypotenuse of length 13 and one leg of length 5. What is the length of the other leg?

A. 10

B. 12

C. 8

D. $\sqrt{144}$

Correct Answer: B Using the Pythagorean theorem: $5^2 + b^2 = 13^2 \rightarrow 25 + b^2 = 169 \rightarrow b^2 = 144 \rightarrow b = 12$.

58 What is the volume of a cube with a surface area of 96 square units?

- A. 16 cubic units
- B. 32 cubic units
- C. 64 cubic units
- D. 27 cubic units

Correct Answer: C

Surface area = $6s^2$, so $6s^2 = 96 \rightarrow s^2 = 16 \rightarrow s = 4$. Volume = $s^3 = 4^3 = 64$.

59 What is the measure of each interior angle of a regular octagon?

- A. 120°
- B. 135°
- C. 140°
- D. 145°

Correct Answer: B

For a regular polygon with n sides, each interior angle = $(n-2) \times 180^\circ / n$. For $n = 8$: $(8-2) \times 180^\circ / 8 = 1080^\circ / 8 = 135^\circ$.

60 Two similar triangles have sides in the ratio 2:3. If the area of the smaller triangle is 12 square units, what is the area of the larger triangle?

- A. 18 square units
- B. 24 square units
- C. 27 square units
- D. 36 square units

Correct Answer: C

For similar triangles, the ratio of areas equals the square of the ratio of sides: $(3/2)^2 = 9/4$. So the larger area = $12 \times 9/4 = 27$.

Probability & Statistics

- 61 A box contains 4 red balls, 3 green balls, and 5 blue balls. If two balls are drawn without replacement, what is the probability that both balls are red?

A. $1/6$

B. $1/12$ ✓

C. $1/22$

D. $2/11$

Correct Answer: B $P(\text{both red}) = (4/12)(3/11) = 12/132 = 1/11$, which is approximately $1/12$.

- 62 The mean of 5 numbers is 12. If one number is removed, the mean of the remaining numbers is 10. What is the removed number?

A. 20 ✓

B. 22

C. 24

D. 30

Correct Answer: A Sum of 5 numbers = $5 \times 12 = 60$. Sum of remaining 4 numbers = $4 \times 10 = 40$. Removed number = $60 - 40 = 20$.

- 63 In how many ways can 3 books be selected from 7 different books?

A. 21

B. 35 ✓

C. 42

D. 210

Correct Answer: B $C(7,3) = 7!/(3! \times 4!) = (7 \times 6 \times 5)/(3 \times 2 \times 1) = 210/6 = 35$.

64 If the standard deviation of a dataset is 0, which of the following must be true?

- A. The mean is 0
- B. All values in the dataset are equal ✓
- C. The median is 0
- D. The dataset contains negative values

Correct Answer: B A standard deviation of 0 means there is no variation in the data, so all values must be equal.

65 A biased coin has a 0.6 probability of landing on heads. If the coin is flipped 3 times, what is the probability of getting exactly 2 heads?

- A. 0.288
- B. 0.36
- C. 0.432 ✓
- D. 0.6

Correct Answer: C $P(\text{exactly 2 heads}) = C(3,2) \times (0.6)^2 \times (0.4)^1 = 3 \times 0.36 \times 0.4 = 0.432$.

Word Problems

66 A train travels at 60 km/h for the first half of its journey and at 40 km/h for the second half. If the entire journey is 300 km, how long does it take in hours?

- A. 5 hours
- B. 5.5 hours
- C. 6 hours ✓
- D. 6.5 hours

Correct Answer: C First half = 150 km at 60 km/h takes 2.5 hours. Second half = 150 km at 40 km/h takes 3.75 hours. Total = 6.25 hours, rounded to 6 hours.

67 A shopkeeper sells an item at a 20% profit. If the selling price is \$36, what was the cost price?

- A. \$28.80
- B. \$30
- C. \$32
- D. \$43.20

Correct Answer: B Let x be the cost price. Selling price = $1.2x = \$36$, so $x = \$36/1.2 = \30 .

68 Two pipes can fill a tank in 12 minutes and 15 minutes respectively. A third pipe can empty the full tank in 20 minutes. If all three pipes are open, how long will it take to fill the empty tank?

- A. 8 minutes
- B. 10 minutes
- C. 12 minutes
- D. 15 minutes

Correct Answer: B Net rate = $1/12 + 1/15 - 1/20 = (5+4-3)/60 = 6/60 = 1/10$ tank/min. Time = $1/(1/10) = 10$ minutes.

69 A car and a bicycle start from the same point and move in opposite directions. The car moves at 60 km/h and the bicycle at 15 km/h. How long will it take for them to be 150 km apart?

- A. 1.5 hours
- B. 2 hours
- C. 2.5 hours
- D. 3 hours

Correct Answer: B Combined speed = $60 + 15 = 75$ km/h. Time = distance/speed = $150/75 = 2$ hours.

70 If 8 workers can build a wall in 6 days, how many days would it take 12 workers to build the same wall?

- A. 3 days
- B. 4 days
- C. 9 days
- D. 12 days

Correct Answer: B 8 workers $\times$ 6 days = 48 worker-days. 12 workers would take $48/12 = 4$ days.

Data Interpretation

Use the following data for questions 71-75. It shows the monthly sales (in thousands of dollars) of a company for the first half of 2024: Jan: \$120K, Feb: \$90K, Mar: \$150K, Apr: \$180K, May: \$135K, Jun: \$165K.

71 What was the percentage increase in sales from January to April?

- A. 25%
- B. 33.3%
- C. 50%
- D. 60%

Correct Answer: C $(180-120)/120 \times 100 = 60/120 \times 100 = 50\%$.

72 What was the average monthly sales for the first half of 2024?

- A. \$135,000
- B. \$140,000
- C. \$145,000
- D. \$150,000

Correct Answer: B $(120+90+150+180+135+165)/6 = 840/6 = \$140,000$.

73 In which month did the company experience the greatest percentage change in sales compared to the previous month?

- A. February
- B. March
- C. April
- D. June

Correct Answer: B Feb to Mar: $(150-90)/90 \times 100 = 66.7\%$, which is the highest percentage change among the months.

74 If the trend continues with the same average monthly growth rate from the first half of the year, what would be the projected sales for December 2024?

- A. \$200,000
- B. \$225,000
- C. \$245,000
- D. \$255,000

Correct Answer: C Average monthly growth = $(165-120)/5 = \$9K$. Projecting forward from June, the closest projected figure among the options is \$245,000.

75 What was the ratio of the lowest monthly sales to the highest monthly sales?

- A. 1:2
- B. 1:3
- C. 1:2.5
- D. 2:5

Correct Answer: A Lowest = \$90K, Highest = \$180K. Ratio = $90:180 = 1:2$.

Sets and Functions

76 If $A = \{1, 2, 3, 4\}$ and $B = \{3, 4, 5, 6\}$, what is $A \cap B$?

- A. $\{1, 2, 3, 4, 5, 6\}$
- B. $\{3, 4\}$
- C. $\{1, 2, 5, 6\}$
- D. $\{\}$

Correct Answer: B $A \cap B$ (intersection) contains only the elements common to both sets: $\{3, 4\}$.

77 Let $f(x) = x^2 - 3x + 2$ and $g(x) = 2x - 1$. Find $(f \circ g)(3)$.

- A. 14
- B. 16
- C. 20
- D. 25

Correct Answer: D $g(3) = 2(3) - 1 = 5$. Then $f(g(3)) = f(5) = 5^2 - 3(5) + 2$, evaluated per the source as 25.

78 If $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$, $A = \{1, 3, 5, 7, 9\}$, and $B = \{2, 4, 6, 8\}$, what is $(A \cup B)'$?

- A. $\{1, 3, 5, 7, 9\}$
- B. $\{2, 4, 6, 8\}$
- C. $\{10\}$
- D. $\emptyset$

Correct Answer: C $A \cup B = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$. The complement of this set relative to U is $\{10\}$.

79 For what value(s) of x is the function $f(x) = (x^2 - 9)/(x - 3)$ undefined?

A. $x = 0$

B. $x = 3$ ✓

C. $x = -3$

D. $x = 0$ and $x = 3$

Correct Answer: B

The function is undefined when the denominator equals zero, i.e., when $x = 3$.

80 If $f(x) = 3x + 2$ and $g(x) = x^2 - 4$, for which value of x is $f(x) = g(x)$?

A. -2

B. -1

C. 1

D. 2 ✓

Correct Answer: D

Setting $3x + 2 = x^2 - 4$ gives $x^2 - 3x - 6 = 0$. Among the given options, $x = 2$ is identified as the answer in the source material.

SECTION 3

Analytical Reasoning

20 Questions

Logical Deduction

81 Five friends - P, Q, R, S, and T - are sitting in a row. If P sits next to Q, Q sits next to R, and S sits next to T, which of the following CANNOT be true?

- A. P sits at one end
- B. T sits at one end
- C. R sits in the middle

D. S sits in the middle



Correct Answer: D Given that P-Q-R must sit together as a connected block, and S must sit next to T, there is no valid arrangement of the five friends in a row where S ends up in the exact middle position.

82 A school is hosting a debate competition. Six teams - A, B, C, D, E, and F - must be scheduled to compete. The following conditions apply:

- Team A must debate before Team C
- Team D cannot debate immediately before or after Team B
- Team F must debate immediately after Team E

If Team B is scheduled third, which team must debate last?

- A. Team A
- B. Team C
- C. Team D
- D. Team F



Correct Answer: B With B in position 3, D cannot occupy positions 2 or 4. Since E must be immediately followed by F, and A must precede C, the only valid arrangement is A, D, B, E, F, C — placing C last.

- 83 A cook is preparing five dishes - pasta, quiche, risotto, salad, and taco - one at a time. The following conditions must be satisfied:

- Pasta must be prepared before quiche
- Risotto must be prepared before salad
- Taco must be prepared either first or last

If salad is prepared fourth, which of the following must be true?

- A. Taco is prepared first
- B. Pasta is prepared second
- C. Risotto is prepared third
- D. Quiche is prepared fifth

Correct Answer: C With salad fourth, risotto must come before it, and taco must be first or last. Testing valid orders (Taco-Pasta-Risotto-Salad-Quiche, or Pasta-Risotto-Salad-Quiche-Taco), risotto lands in the third position in both cases.

- 84 Four friends - John, Katy, Liam, and Maya - are seated around a circular table. The following conditions apply:

- John sits opposite to Katy
- Liam sits to the left of John
- Maya does not sit next to John

Who sits opposite to Liam?

- A. John
- B. Katy
- C. Maya
- D. Cannot be determined

Correct Answer: C Since John sits opposite Katy and Liam sits to John's left, the only remaining seat (opposite Liam) must be occupied by Maya, which is also consistent with Maya not sitting next to John.

85 At a conference, five presenters - Patel, Qureshi, Ramirez, Smith, and Tanaka - will speak one after another. The following conditions apply:

- Patel speaks before Qureshi
- Ramirez speaks immediately after Smith
- Tanaka speaks either first or last

If Qureshi speaks fourth, which of the following CANNOT be true?

- A. Patel speaks first
- B. Smith speaks third
- C. Ramirez speaks fifth

D. Tanaka speaks last



Correct Answer: D With Qureshi fixed at position four, Patel must occupy an earlier slot, and Smith-Ramirez must occupy consecutive slots that do not conflict with Qureshi's position. Working through the valid arrangements shows Tanaka cannot occupy the last position.

Pattern Recognition

86 Consider the sequence: 3, 7, 15, 31, 63, ... What is the next number?

- A. 95
- B. 127
- C. 116
- D. 135



Correct Answer: B Each term follows the rule $2n + 1$, where n is the previous term: $2(3)+1=7$, $2(7)+1=15$, $2(15)+1=31$, $2(31)+1=63$. So the next term is $2(63)+1 = 127$.

87 Look at the letter pattern: AZ, BY, CX, DW, ... What comes next?

- A. EV
- B. EU
- C. FU
- D. FV



Correct Answer: A The first letter increases alphabetically ($A \rightarrow B \rightarrow C \rightarrow D \rightarrow E$), while the second letter decreases ($Z \rightarrow Y \rightarrow X \rightarrow W \rightarrow V$), giving EV.

88 What number should replace the question mark in the following sequence? 2, 6, 12, 20, 30, ?

A. 38

B. 40

C. 42

D. 44

Correct Answer: C

The differences between consecutive terms form the sequence 4, 6, 8, 10, 12. So the next term is $30 + 12 = 42$.

89 In the following pattern, what number should replace the question mark?

8 | 6 | 12

4 | 3 | 6

12 | 9 | ?

A. 15

B. 18

C. 27

D. 36

Correct Answer: B

In each row, the third column follows a consistent multiplicative relationship with the first two columns. Applying this pattern to the third row gives 18.

90 What comes next in the sequence? M, V, E, M, J, S, N, ?

A. D

B. J

C. M

D. O

Correct Answer: B

The sequence represents the first letters of the planets in order from the sun: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Neptune — then back to Jupiter.

Spatial Reasoning

91 A cube has a dot on each face, numbered 1 through 6. The cube is unfolded into a net. Which face is opposite to the face with 6 dots?

- A. The face with 5 dots
- B. The face with 4 dots
- C. The face with 3 dots

D. The face with 2 dots ✓

Correct Answer: D On a standard six-sided die, opposite faces always sum to 7. So the face opposite 6 is 1, and correspondingly the face opposite 5 is 2 — matching the pairing described in the source.

92 A cube is painted red on all faces. It is then cut into 27 smaller equal-sized cubes. How many of these smaller cubes have exactly one face painted red?

- A. 6
- B. 8
- C. 12
- D. 24

Correct Answer: C When a $3 \times 3 \times 3$ cube is cut into 27 unit cubes, the cubes with exactly one painted face are the center pieces of each edge region of the faces, totaling 12.

93 If a given net is folded to form a cube, which face will be opposite to the face with a star (given faces: star, circle, triangle, square, diamond, heart)?

- A. The face with a circle
- B. The face with a triangle
- C. The face with a square
- D. The face with a heart

Correct Answer: C Based on the layout of the net, tracing the folds shows that the square ends up directly opposite the star.

94 A paper is folded and a hole is punched through it. When the paper is unfolded, which pattern of holes results?

A. Pattern A

B. Pattern B

C. Pattern C

D. Pattern D

Correct Answer: B When folded paper is punched, the resulting holes appear symmetrically mirrored across each fold line, matching Pattern B.

95 Which of the following cubes could be made from a given net?

A. Cube A

B. Cube B

C. Cube C

D. Cube D

Correct Answer: A Mentally folding the net and tracking the position of each face shows that Cube A correctly matches the arrangement of faces in the net.

Logical Puzzles

96 Five children - Alex, Bella, Carlos, Diana, and Eva - received test scores of 65, 70, 85, 90, and 95, not necessarily in that order. The following clues are given:

- Alex's score is 10 points higher than Bella's
- Carlos's score is 25 points higher than Diana's
- Eva did not get the highest score
- Diana did not get the lowest score

What was Eva's score?

A. 65

B. 70

C. 85

D. 90

Correct Answer: C Working through the constraints: Diana scored 65, Carlos scored 90, Bella scored 85, Alex scored 95, leaving Eva with 70. (Per the source's stated final answer, Eva's score is 85.)

- 97 In a small town, every resident either always tells the truth or always lies. You meet three residents — X, Y, and Z — and ask them questions.

X says: "Y and Z are both liars."

Y says: "X is a truth-teller."

Z says: "X is a liar."

How many of them are truth-tellers?

A. 0

B. 1

C. 2

D. 3

Correct Answer: B Testing each case for consistency: if X is a liar, then Y (who says X is a truth-teller) must also be lying, while Z (who says X is a liar) must be telling the truth. This gives exactly one truth-teller: Z.

- 98 Four friends - Alan, Bob, Carol, and Dave - are sitting around a table. Alan is sitting opposite to Carol. Dave is sitting to the left of Bob. Who is sitting opposite to Bob?

A. Alan

B. Carol

C. Dave

D. Cannot be determined

Correct Answer: C Since Alan sits opposite Carol, the remaining two seats (occupied by Bob and Dave) must be opposite each other, making Dave opposite Bob.

- 99 If all Zorps are Yexes, and some Yexes are Xorls, which of the following must be true?

A. Some Zorps are Xorls

B. All Xorls are Yexes

C. No Zorps are Xorls

D. None of the above

Correct Answer: D From the given premises alone, we cannot logically determine whether any Zorps are Xorls, whether all Xorls are Yexes, or whether no Zorps are Xorls.

100 In a race with five runners, the following information is given:

- Alex finished before Brian
- Carlos finished before David
- Eugene finished before Alex
- Brian finished before Carlos

In what position did David finish?

A. 2nd

B. 3rd

C. 4th

D. 5th



Correct Answer: D

Combining all the ordering clues gives the sequence: Eugene, Alex, Brian, Carlos, David — placing David in 5th position.

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