

6. The sense of animosity between the rival groups was resolved peacefully. (1)

- A. grievance
B. ✓ **hatred**
C. exposure
D. revenge

Answer: B

'Animosity' means strong hostility or active ill will, making 'hatred' the closest synonym among the options.

7. The practice of tax evasion is harmful to the development of a nation. (1)

- A. ✓ **avoidance**
B. endorsement
C. conviction
D. resilience

Answer: A

'Tax evasion' is the illegal non-payment or 'avoidance' of paying taxes.

8. GUNPOWDER: EXPLOSION; Volcano: _____ (1)

- A. Landslide
B. Concentration
C. ✓ **Eruption**
D. Pasteurization

Answer: C

This is a cause-and-effect analogy: gunpowder produces an explosion when activated, just as a volcano produces an eruption when active.

9. CARAVAN: DESERT; Perch: _____ (1)

- A. ✓ **Aquatic**
B. Terrestrial
C. Aerial
D. Tropical

Answer: A

A caravan is typically found in a desert environment, while a perch (a type of fish) is found in an aquatic environment.

10. HISTORY: CHRONOLOGICAL; Topography: _____ (1)

- A. Temperature
B. ✓ **Spatial**
C. Climate
D. Travel

Answer: B

History is organized according to time (chronological), whereas topography is represented and organized according to space (spatial).

11. DREAM: SHATTERED; Promises: _____ (1)

- A. ✓ **Broken**
B. Denied
C. Cancelled
D. fulfilled

Answer: A

This is a collocation analogy: we speak of 'shattered dreams' when they fail, and 'broken promises' when they are not kept.

12. BROADCAST : VERBAL; Paralanguage: _____ (1)

- A. Audio-visual
B. Imagery
C. ✓ **Body**
D. Multimodal

Answer: C

While broadcast relies heavily on verbal communication, paralanguage (which includes vocal tone, gestures, and facial expressions) is closely associated with non-verbal 'body' language.

13. The spread of English across the globe is attributed to _____ (1)
- A. WWII
B. ✓ **British colonialism**
C. the Will of Queen Elizabeth
D. WWI

Answer: B

Historically, the global spread of the English language is primarily attributed to the expansion of the British Empire and British colonialism.

14. What was the misconception of Indian Head Masters about the end goal of education? (1)
- A. Linguistic hybridity
B. ✓ **Mastering the 'Queen's English'**
C. Reading Shakespeare
D. A preference for the American English

Answer: B

In colonial education systems, a major misconception was that the ultimate goal of learning English was to master the prestigious 'Queen's English'.

15. The word recedes in paragraph 2, could interchangeably be used with _____ (1)
- A. outshines
B. ✓ **shrinks**
C. predominates
D. outnumber

Answer: B

To 'recede' means to move back, diminish, or withdraw, which is closest in meaning to 'shrinks' in this context.

16. The word monolithic in paragraph 2 is synonymous with _____ (1)
- A. hybrid
B. multilingual
C. ✓ **unitary**
D. pure

Answer: C

'Monolithic' refers to something that is single, uniform, and indivisible, making 'unitary' the closest synonym.

17. Statement: In many undemocratic countries, minority groups were marginalized for one reason or another. (1)
Conclusions: I. In such countries, individual rights were more important than group rights. II. In such countries, group rights were more important than individual rights. III. In such countries, citizens could be marginalized on racial and religious grounds. IV. Collective identity was more significant than individual identity. Which one of the conclusions is more logical?
- A. Conclusion I
B. Conclusion II
C. Conclusions I and III
D. ✓ **Conclusion II, III and IV**

Answer: D

In undemocratic countries that marginalize minorities, people are judged and targeted by their collective identity (III, IV) rather than their individual rights, meaning group dynamics and state power supersede individual rights (II).

18. Statement: Many investment projects contribute to environmental pollution unless they are closely monitored by regulatory agencies. Conclusion: I. The development policies of certain countries is exemplary. II. Environmental impact should not be undermined in the implementation of projects. III. Regulatory agencies are responsible for monitoring the implementation of modalities. Which one of the conclusions is implied by the head sentence? (1)
- A. Conclusion I
B. Conclusion II
C. ✓ **Conclusions II and III**
D. Conclusion I and II

Answer: C

The premise implies that projects have environmental impacts that must be managed (II) and that regulatory agencies are tasked with the responsibility to monitor them (III).

19. The migration of birds from one part of the world to another is attributed to impulses of weather. They flock from Polar Regions to the tropical zone or vice-versa following seasonal changes. The choice of their destination depends on whether or not these migratory birds are cold-blooded. The assumption of the above argument revolves around _____ (1)
- A. the seasonal readjustment of cold-blooded birds
 - B. the bipolar migration of all birds
 - C. ✓ **the survival of birds under the strains of climate**
 - D. the difference between polar and tropical birds

Answer: C

The argument connects bird migration and destination choice directly to weather impulses and seasonal changes, assuming that migration is essential for the birds' survival under climatic strains.

20. The traditional view about the predestination of poverty has been challenged on scientific grounds. With the advent of science and technology, the stratification of the human society into the poor and the rich is based on man-made problems rather than Divine intervention. In order to ensure equality and equitability of natural resources, modern governments should adopt and enforce the pillars of good governance. This writer proposes that (1)
- A. the fate of the poor is irreversible
 - B. the fortune and the misfortune of humanity is predestined
 - C. ✓ **poverty is man-made and can be resolved by humans themselves**
 - D. the traditional view of pessimism is still persistent

Answer: C

The text states that social stratification into rich and poor is due to man-made problems rather than divine intervention, and suggests that modern governments should enforce good governance to address these inequalities.

21. Statement: All public and private schools were closed down during the outburst of the Covid-19 pandemic, which also led to socio-economic crisis. Conclusions: I. The spread of Covid-19 was caused by the closure of schools. II. The spread of Covid-19 had forced the closure of schools apart from impacting the socio-economic sector. III. The outbreak of this virus had nothing to do with the social service sector. The writer seems to underline the consequences of Covid-19 as stated in (1)
- A. conclusion I
 - B. ✓ **conclusion II**
 - C. conclusion III
 - D. Not given

Answer: B

Conclusion II correctly summarizes the statement: the pandemic was the cause of the school closures and also led to a socio-economic crisis.

22. The Ministry of Inland Revenue and Customs praised the loyal tax payers for discharging their duty. What can we deduce from this premise? (1)
- A. Tax avoidance has completely been put under control
 - B. Income generation and business are not interrelated
 - C. ✓ **There are duty-bound tax payers who support the development endeavours**
 - D. Deduction of value added taxes on the price of goods is fashionable

Answer: C

Praising loyal tax payers for discharging their duty directly implies that there are duty-bound taxpayers who support development and public services through their taxes.

23. Statement: The outbreak of malaria in the tropical zones has posed a threat to public health and the GDP of malarial countries. Conclusions: I. Tropical countries should prioritize the eradication of malaria for humanitarian and economic reasons. II. The death of people from malaria does not affect the GDP of a country. III. Malaria should not be the focal point of research. Which one of the above conclusions could be drawn from the premise? (1)

A. Conclusion II
B. ✓ Conclusion I
C. Conclusion III
D. Not given

Answer: B

Since malaria threatens both public health (humanitarian) and GDP (economic), conclusion I logically follows as a priority for tropical countries.

24. Which one of the following is true for every natural number n ? (1)

A. ✓ $(n + 1)^3 \geq n^3 + 1$
B. $6^n - 1 \leq 625$
C. $(n + 1)^2 \leq n^2 - 2n$
D. $n^2 \geq n!$

Answer: A

For any natural number $n \geq 1$, $(n + 1)^3 = n^3 + 3n^2 + 3n + 1 > n^3 + 1$, so $(n + 1)^3 \geq n^3 + 1$ is always true. The other options fail for various values of n (e.g., $n = 4$ fails for B and D).

25. If your total income is 12,000 Birr per month and you can't spend more than 60% on housing, what is the maximum amount of your total income that can be spent on housing? (1)

A. 9,000 Birr
B. 5,600 Birr
C. 6,000 Birr
D. ✓ 7,200 Birr

Answer: D

The maximum amount that can be spent on housing is 60% of 12,000 Birr, which is calculated as $0.60 \times 12,000 = 7,200$ Birr.

26. Suppose that the perimeter of a rectangular farm is 80 meter. If the farm is y meter long and x meter wide then which one of the following functions of x will model the total area of the farm in square meter? (1)

A. ✓ $f(x) = -x^2 + 40x$
B. $g(x) = x^2 - 40x$
C. $h(x) = -2x^2 + 80x$
D. $k(x) = 2x^2 + 80x$

Answer: A

The perimeter of the rectangle is $2x + 2y = 80$, which simplifies to $y = 40 - x$. The area of the farm is $A(x) = xy = x(40 - x) = -x^2 + 40x$.

27. Which one of the following is the coefficient of x^3 in the expansion of the algebraic expression $(x + y)^4$? (1)

A. 2
B. 6
C. ✓ 4
D. 3

Answer: C

According to the binomial theorem, the term containing x^3 in the expansion of $(x + y)^4$ is $\binom{4}{1}x^3y = 4x^3y$, so the binomial coefficient is 4.

28. Which one of the following is the degree of the polynomial function $f(x) = (2x + 7)^5(3x - 1)^2$? (1)

- A. 6
B. 5
C. ✓ 7
D. 2

Answer: C

The degree of $(2x + 7)^5$ is 5 and the degree of $(3x - 1)^2$ is 2. The degree of their product is the sum of their individual degrees, which is $5 + 2 = 7$.

29. Which one of the following is necessarily true about any real numbers x and y ? (1)

- A. $(x - y)^2 \leq (x + y)^2$
B. $(x + y)^2 \leq (x - y)^2$
C. $|x + y| \geq |x - y|$
D. ✓ $|x + y| = |-x - y|$

Answer: D

The absolute value of any number is equal to the absolute value of its negative, so $|x + y| = |-(x + y)| = |-x - y|$ holds true for all real numbers.

30. Suppose $\{a_n\}_{n=1}^{\infty}$ is an arithmetic sequence and $a_5 + a_8 = 41$ and $a_8 - a_5 = 9$, then which one of the following is the sequence? (1)

- A. 2, 5, 8, 11, 14, ...
B. ✓ 4, 7, 10, 13, 16, ...
C. 1, 4, 7, 10, 13, ...
D. 3, 6, 9, 12, 15, ...

Answer: B

In an arithmetic sequence, $a_8 - a_5 = 3d = 9 \implies d = 3$. Then $a_5 + a_8 = 2a_1 + 11d = 41 \implies 2a_1 + 33 = 41 \implies a_1 = 4$, which corresponds to the sequence starting with 4, 7, 10, ...

31. If the n th-term of the arithmetic sequence $\{a_n\}_{n=1}^{\infty}$ is given by $a_n = 3n - 2$, then which one of the following is the sum of the first seven terms of the sequence? (1)

- A. ✓ 70
B. 19
C. 72
D. 28

Answer: A

The sum of an arithmetic sequence is $S_n = \frac{n}{2}(a_1 + a_n)$. For $n = 7$, $a_1 = 3(1) - 2 = 1$ and $a_7 = 3(7) - 2 = 19$, so $S_7 = \frac{7}{2}(1 + 19) = 70$.

32. Which one of the following is the sum of the first six terms of the geometric sequence (1)

$$\left\{ 3 \left(\frac{1}{2} \right)^{n-1} \right\}_{n=1}^{\infty} ?$$

- A. $\frac{93}{16}$
B. ✓ $\frac{189}{32}$
C. $\frac{45}{8}$
D. $\frac{381}{64}$

Answer: B

Using the geometric series sum formula $S_k = a \frac{1-r^k}{1-r}$ with $a = 3$, $r = 1/2$, and $k = 6$, we get $S_6 = 3 \frac{1-(1/2)^6}{1-1/2} = 6(1 - \frac{1}{64}) = \frac{189}{32}$.

33. Consider the system of linear equations $x - 2y = 3$ and $3x + 2y = 1$. Then which one of the following is true about the system? (1)
- A. The system has no solution. B. The system has infinite solutions.
C. The system has two different solutions. D. ✓ **The system has unique solution.**

Answer: D

The determinant of the system's coefficient matrix is $1(2) - (-2)(3) = 8 \neq 0$, meaning the system has a unique solution, which is $(1, -1)$.

34. Suppose you want to select a 3-person committee from a group of 7 teachers. How many ways are there to do this? (1)
- A. 210 B. ✓ **35**
C. 60 D. 120

Answer: B

The number of ways to choose a 3-person committee from 7 teachers is given by the combination formula $\binom{7}{3} = \frac{7 \times 6 \times 5}{3 \times 2 \times 1} = 35$.

35. A box contains 12 pieces of paper, each of which has the name of one of the 12 students in a class consisting of 7 male and 5 female students, all with different names. What is the probability of a randomly selected piece of paper has a female student name? (1)
- A. ✓ $\frac{5}{12}$ B. $\frac{5}{7}$
C. $\frac{7}{12}$ D. $\frac{5}{10}$

Answer: A

The probability of choosing a female student is the number of female students divided by the total number of students, which is $\frac{5}{7+5} = \frac{5}{12}$.

36. According to a survey, in an area, 25% of the trees planted did not grow in the year 2011 E.C. and 35% of the trees planted did not grow in the year 2014 E.C. What was the percentage increase in the fraction of trees planted that did not grow from the year 2011 E.C. to the year 2014 E.C.? (1)
- A. 60% B. ✓ **40%**
C. 50% D. 30%

Answer: B

The percentage increase in the fraction of trees that did not grow is $\frac{35\% - 25\%}{25\%} \times 100\% = \frac{10}{25} \times 100\% = 40\%$.

37. A lake was 30m deep. Two months later, its depth decreased by 20%. If the depth of the lake increased from where it was after two months by 15% in three months' time, what was the cumulative percentage change in the depth of the lake during the five months? (1)
- A. 6% B. 5%
C. ✓ **8%** D. 10%

Answer: C

If the depth decreases by 20% and then increases by 15%, the final depth is $(1 - 0.20)(1 + 0.15) = 0.80 \times 1.15 = 0.92$ of the original depth, representing an overall 8% decrease.

38. Which one of the following is the solution set of the system of linear equations given by $x + y = 1$ and $3x - y = 7$? (1)

A. $\{(-1, 2)\}$ B. ✓ $\{(2, -1)\}$
C. $\{(2, 1)\}$ D. $\{(-2, 1)\}$

Answer: B

Adding the two equations, we get $(x + y) + (3x - y) = 1 + 7$, which simplifies to $4x = 8$, or $x = 2$. Substituting $x = 2$ back into the first equation yields $2 + y = 1$, which gives $y = -1$. Hence, the solution set is $\{(2, -1)\}$.

39. Which one of the following ordered pair of numbers is not in the solution of the system of linear inequalities $x + y \geq 1$ and $x - 2y \leq 2$? (1)

A. (1, 2) B. (2, 1)
C. (-1, 2) D. ✓ (2, -1)

Answer: D

For the ordered pair (2, -1), the second inequality $x - 2y \leq 2$ becomes $2 - 2(-1) = 4 \leq 2$, which is false. Therefore, (2, -1) is not in the solution set of the system of inequalities.

40. Given the system of linear inequalities $ax + by \geq c$ and $ax + by \leq c$ for arbitrary constants a, b and c in $\mathbb{R}$ with $c \neq 0$, then which one of the following is true about the solution set of the system? (1)

A. $\{(x,y): ax + by \geq c\}$ B. $\{(x,y): ax + by \leq c\}$
C. ✓ $\{(x,y): ax + by = c\}$ D. $\{(x,y): ax + by \neq c\}$

Answer: C

The solution set of a system of inequalities is the intersection of the solution sets of each individual inequality. Since the system requires both $ax + by \geq c$ and $ax + by \leq c$ to be true simultaneously, the only points that satisfy both are those where $ax + by = c$.

41. A woman spent one fifth of her salary for clothing, two fifth her salary for different bills and 100 Birr for her transport. After covering all these costs she is left with 4,500 Birr. What was the salary she received? (1)

A. ✓ 11,500 Birr B. 12,500 Birr
C. 13,500 Birr D. 10,500 Birr

Answer: A

Let x be the salary. The total money spent is $(1/5)x + (2/5)x + 100 = (3/5)x + 100$. Subtracting this from x gives the remainder: $x - (3/5)x - 100 = 4500$, which simplifies to $(2/5)x = 4600$, yielding $x = 11,500$ Birr.

42. During the sunshine, an upright building 16 meters tall is casting a shadow of 12 meters long. At the same time, a nearby upright building is casting a shadow of 18 meters long. If the lengths of the shadows are proportional to the heights of the buildings, what is the height, in meter, of the taller building? (1)

A. 32 B. 17
C. 36 D. ✓ 24

Answer: D

Since the heights and shadow lengths are proportional, we can write the ratio as Height / Shadow = constant. This gives $16 / 12 = H / 18$, which simplifies to $H = 18 * (4/3) = 24$ meters.

END OF THE MARKING KEY

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