2017/2025 SAT Exam Paper(Natural Science)

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EDUCATIONAL ASSESSMENT AND EXAMINATIONS SERVICE (EAES)
ETHIOPIAN SECONDARY SCHOOL LEAVING CERTIFICATE EXAMINATION (ESSLCE)
Scholastic Aptitude Test, Sene, 2017 E.C /June/July, 2025 G.C

NUMBER OF ITEMS: 60
TIME ALLOWED: 2 HOURS

SUBJECT CODE: 03
BOOKLET CODE: 397

Section One: Verbal Reasoning (Questions 1 - 35)

Directions: This section, which is subdivided into Reading Comprehension, Classification, Analogy, Word Substitution, Analytical and Logical Reasoning, Antonyms, Synonyms and Sentence Correction, contains 35 items altogether. Each subsection is followed by its specific instruction.

Reading Comprehension

Instruction: Read the following passage carefully and answer questions **1 - 4** based on the information stated or implied in the passages. Then, **blacken** the letter of your choice on the separate answer sheet provided.

Passage 1

If you want transition from being an employee to an employer, the first step is to serve your current employer as you would wish to be served. Most successful employers today have risen through the ranks, relying on their ability to manage and direct others effectively by suppressing the **vices** of employers. They started with no more opportunities than you have now.

There are people in your community who could benefit from your skills and vice versa. For example, Mr. John Smith wants to sell his grocery store and start a movie theater, while someone else with a movie theater might want to trade for a grocery store. If you can connect **these two individuals**, you will serve both and earn a commission in the process.

***Source**: Hill, N. (2005). The law of success: The 21st century edition (pp. 633-634)*

1. According to the passage, what does the word **vices** most likely denote?
   A. deputies
   B. weaknesses
   C. strengths
   D. ambitions

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2. What does the sentence *most successful employers today have risen through the ranks, relying on their ability to manage and direct others effectively* imply?
   A. Every successful employer is the result of his/her hard work and diligence.
   B. All successful employers today have reached their level passing through lots of ups and downs.
   C. Having different ranks and rewards is the real manifestation of successful employers.
   D. Most successful employers have proven their leadership ability through their journey.

3. In Paragraph 2, the phrase **these two individuals** refers to_____
   A. John Smith & the person in movie industry.
   B. the employer and the employee.
   C. the grocery store and the movie theatre.
   D. people and the community as a whole.

4. The main intent of the writer in the text is to imply that_____
   A. the transition from employee to employer does not require much effort except having the interest.
   B. most successful employers are those who have achieved their dreams through trade-off.
   C. smooth transition from being an employer to employee is more of a matter of destiny than hard work.
   D. there are steps that one needs to undergo in the transition from employee to employer.

Classification Items

Instruction: Questions **5 - 8** contain category of words of which one does not belong to the group. Choose a word that does **NOT** fit to the group and **blacken** the letter of your choice on the separate answer sheet provided.

5. A. Monogamy
   B. Polyglot
   C. Polygamy
   D. Polyandry

6. A. Yacht
   B. Vehicle
   C. Ship
   D. Boat

7. A. Tiptoeing
   B. Strolling
   C. Flying
   D. Striding

8. A. Election
   B. Signal-box
   C. Ballot-box
   D. Voting

Analogy

Instruction: For items **9 - 12**, read each of the following pair of words written in capital letter carefully and choose the word that correctly has a similar relationship with the given word. Then, **blacken** the letter of your choice on the separate answer sheet provided.

9. PHYSICIAN: HOSPITAL; _____: School
   A. Administrator
   B. Supervisor
   C. Student
   D. Teacher

10. KEY: LOCK; _____: Computer
    A. Server
    B. Monitor
    C. Screen
    D. Password

11. AUTOMOBILE: GARAGE; _____: Hangar
    A. Deck
    B. Train
    C. Truck
    D. Airplane

12. NEST: BIRD; _____: Lion
    A. Backyard
    B. Hive
    C. Den
    D. Cave

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15. What is described as an absurd assumption about reading according to the passage?
    A. Reading does not require physical effort.
    B. Ideas can be instantly absorbed & organized.
    C. All books are equally valuable.
    D. Superior minds are easy to understand.

16. Which of the ideas is used as evidence for your answer to question number 15?
    A. Line 3 - 4 [If we are not … is not in us.]
    B. Line 2 [We do not … disposal of the book.]
    C. Line 7-9 [For we … greater than our own.]
    D. Line 11 [Hence, it follows… remains to be…]

Word Substitution

Instruction: Questions **17 - 19** are related to word substitution. Each question is followed by four alternatives. Choose the word which could be interchangeably used with the words written in **bold**, and **blacken** the letter of your choice on the separate answer sheet provided.

17. The man was killed in a car accident. His body was dragged from the burning **wreckage** of his car.
    A. remains
    B. backseats
    C. fire
    D. wheels

18. The government has just **repealed** the law segregating public facilities so that there will be no longer discrimination.
    A. approved
    B. signed
    C. renewed
    D. cancelled

19. Harvard is one of the most **prestigious** universities in the USA.
    A. privileged
    B. furnished
    C. admired
    D. expensive

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Reading Comprehension

Instruction: Read the following passage carefully and answer questions 13 – 14 based on the information stated or implied in the passages. Then, **blacken** the letter of your choice on the separate answer sheet provided.

Passage II

What is the matter with our reading is casualness, languor, preoccupation. We don't give the book a chance. We don't put ourselves at the disposal of the book. It is impossible to read properly without using all one's engine power. If we are not tired after reading, common sense is not in us. How one should grapple with a superior and not be out of breath?

But even if we read with the whole force of our brain, and do nothing else, common sense is still not in us, while sublime conceit is. For we are assuming that, without further trouble, we can possess, co-ordinate, and assimilate all the ideas and sensations rapidly offered to us by a mind greater than our own. The assumption has only to be stated in order to appear in its monstrous absurdity. Hence, it follows that something remains to be done. This something is the act of reflection. Reading without subsequent reflection is ridiculous; it is equally a proof of folly and vanity.

Source: Taken From: Warriner, J. E. et al. 1958. English Grammar & Composition. P420

13. Why does the author emphasize the act of reflection?
    A. To complete the reading process.
    B. To improve intellectual superiority.
    C. To simplify the ideas encountered.
    D. To make reading more enjoyable.

14. Which of the ideas is used as evidence for your answer to question number 13?
    A. Line 10 [The assumption ... absurdity.]
    B. Line 4 [tired after reading… not in us.]
    C. Line 12 [Reading without… ridiculous,]
    D. Line 1 [What is the … preoccupation.]

Analytical and Logical Reasoning

Instruction: Questions **20 - 25** deal with logical and analytical reasoning. Read the given set of conditions and assumptions for each question. Then, choose the answer that you think is most appropriate among the given alternatives and **blacken** the letter of your choice on the separate answer sheet provided.

20. Which of the following can be rearranged into a 5-letter English word?
    A. PYRIO
    B. GOFAT
    C. DWAEP
    D. PASEH

21. If two days after tomorrow is four days before Saturday, what day is it today?
    A. Friday
    B. Sunday
    C. Saturday
    D. Monday

22. How many months have a twenty-eighth day?
    A. seven months
    B. one month
    C. twelve months
    D. two months

23. Aki is Bali's sister. Yaya is Bali's mother. Lema is Yaya's father. Gette is Lema's mother. Then how is Aki related to Lema?
    A. daughter
    B. grandson
    C. granddaughter
    D. grandmother

24. Gad is older than Dan and Dan is older than Betti. With Senni being older than Dan and younger than Gad, who is the youngest?
    A. Betti
    B. Gad
    C. Senni
    D. Dan

25. **Statement I**: All football players are sportspersons.
    Statement II: All sportspersons are fit.
    Conclusion: Some football players are not fit. This conclusion is:
    A. incorrect
    B. reasonably correct
    C. can't be determined
    D. appropriate

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Antonyms

Instruction: Questions **26 - 28** consist of words written in capital letters followed by four alternatives. Choose the word that is **most nearly opposite** in meaning to the word in **capital**. Then, **blacken** the letter of your choice on the separate answer sheet provided.

26. SUBORDINATE
    A. Superior
    B. Soldier
    C. Retainer
    D. Inferior

27. FONDLY
    A. Affectionate
    B. Hatred
    C. Sociable
    D. Agreeable

28. INVINCIBLE
    A. Breakable
    B. Visible
    C. Debatable
    D. Conquerable

Synonyms

Instruction: Questions **29 - 31** consist of words written in capital letters followed by four alternatives. Choose the word that is **most nearly similar** in meaning to the word in **capital**. Then, **blacken** the letter of your choice on the separate answer sheet provided.

29. THEFT
    A. Burglary
    B. Gossip
    C. Hypocrisy
    D. Suspicion

30. HUMOROUS
    A. Satiating
    B. Amusing
    C. Satisfying
    D. Doubting

31. PHONEY
    A. Fake
    B. Genuine
    C. Funny
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Sentence Correction

Instruction: Questions **32 – 35** consist of grammatically **incorrect** sentences. Choose the letter that contains the correct option. Then, **blacken** the letter of your choice on the separate answer sheet provided.

32. A. One of all-time greatest payer have recently retired from football.
B. One of all-time greatest payer has recently retired from football.
C. One of all-time greatest payers has recently retired from football.
D. One of all-time greatest payers have recently retired from football.

33. A. I wanted to first take shower and then eat snack.
B. I wanted to first take shower and then ate snack.
C. I wanted first take shower and then eat snack.
D. I wanted to first take shower and then eating snack.

34. A. If you'll not feel well, you'd better go to clinic.
B. If you'll not feel well, you better go to clinic.
C. If you're not feeling well, you better go to clinic.
D. If you're not feeling well, you'd better go to clinic.

35. A. There school takes only twenty minutes on foot.
B. Their school takes only twenty minutes on foot.
C. Theirs school takes only twenty minutes on foot.
D. They're school takes only twenty minutes on foot.

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39. A corporation pays ten employees a total of Birr 100,000 every month. Six out of ten employees receives less than Birr 10,000 per month.

Quantity P	Quantity Q
The average of the monthly payment of the corporation	The median of the monthly payment of the corporation

A. Quantity P is greater than Quantity Q.
B. The two quantities cannot be compared.
C. Quantity P is less than Quantity Q.
D. The two quantities are equal.

40. If $-x+2y=4$, then what is the value of $\frac{25^y}{5^x}$?

A. 125
B. 5
C. 625
D. 25

41. A farmer has ten cows. Every day, he receives the same amount of milk in liters from each cow. One day, due to the food supply, he received half of the daily amount of milk from the four cows; he received three-fourth of the daily amount of milk from the three cows, and no milk from the other three cows. In total, he didn't receive ninety-two liters of milk on that day. How many liters of milk did he receive on that particular day?

A. 92
B. 160
C. 16
D. 68

42. An engineer is putting black and white colored ceramics on a square floor of area $36m^2$. Each ceramic has area $1\,m^2$. The engineer places the black ones along both diagonals and the rest is covered by white colored ceramics. In what ratio is black to white ceramic used?

A. 1:6
B. 1:5
C. 1:2
D. 4:5

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43. A woman burns 416 calories in an hour exercise at a fitness center. If she burns 10 calories per minute swimming in the water and 6 calories per minute pedaling on the stationary bike, then how many minutes of the hour does she spend exercising in the water?

A. 56
B. 60
C. 14
D. 46

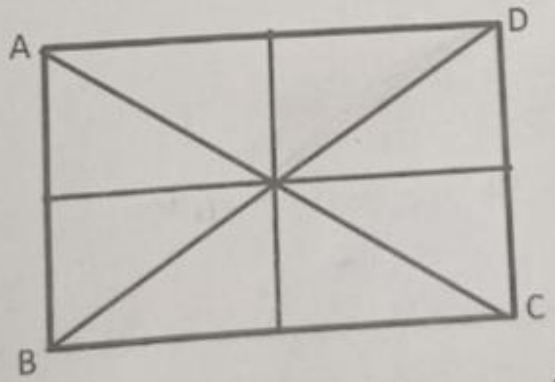
44. A person makes a glass of juice and used half of the glass with avocado, one third of the remaining half with mangoes and the rest is filled by banana and papaya with the same proportion. Which one of the following is the ratio of bananas to avocadoes in the glass?

A. 1:6
B. 1:3
C. 1:2
D. 2:3

45. Two pipes A and B are used to fill a water tank. Pipe A can fill the tank in 3 hours, and pipe B can fill the same tank in 6 hours. How long will it take in hours to fill the tank if both pipes are opened at the same time?

A. 5
B. 9
C. 4
D. 2

46. How many triangles are there in the diagram?



A. 18
B. 16
C. 14
D. 12

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47. A milk factory has only two pipe machines used to fill bottles for market. The old and new machines can fill 35 and 50 bottles per hour, respectively, and a total of 590 bottles are filled every day. One day the old machine was broken after working for 4 hours. How long will it take in hours for the new machine to fill the remaining bottles on that day?

A. 8
B. 13
C. 5
D. 7

48. A daily profit earned by a T-shirt factory is modeled by the formula $p(x) = -x^2 + 1{,}400x - 80{,}000$, where p is the profit and x is the price for each T-shirt sold. What range of prices will yield a profit of at least Birr 400,000?

A. $600 \le x \le 800$
B. $x \le 600$ or $x \ge 800$
C. $x \ge 800$
D. $x \le 600$

49. What is the value of z in the sequence 1, 2, 4, 8, 10, 20, 22, z, …?

A. 44
B. 32
C. 24
D. 40

50. Which one of the following is true about the function $f(x) = x^{\frac{2}{5}}$?

A. The domain of f is $\{x \in \mathbb{R} \mid x \ge 0\}$
B. The range of f is $\{y \mid y \in \mathbb{R}\}$
C. The range of f is $\{y \in \mathbb{R} \mid y \ge 0\}$
D. The domain of f is $\{x \in \mathbb{R} \mid x \le 0\}$

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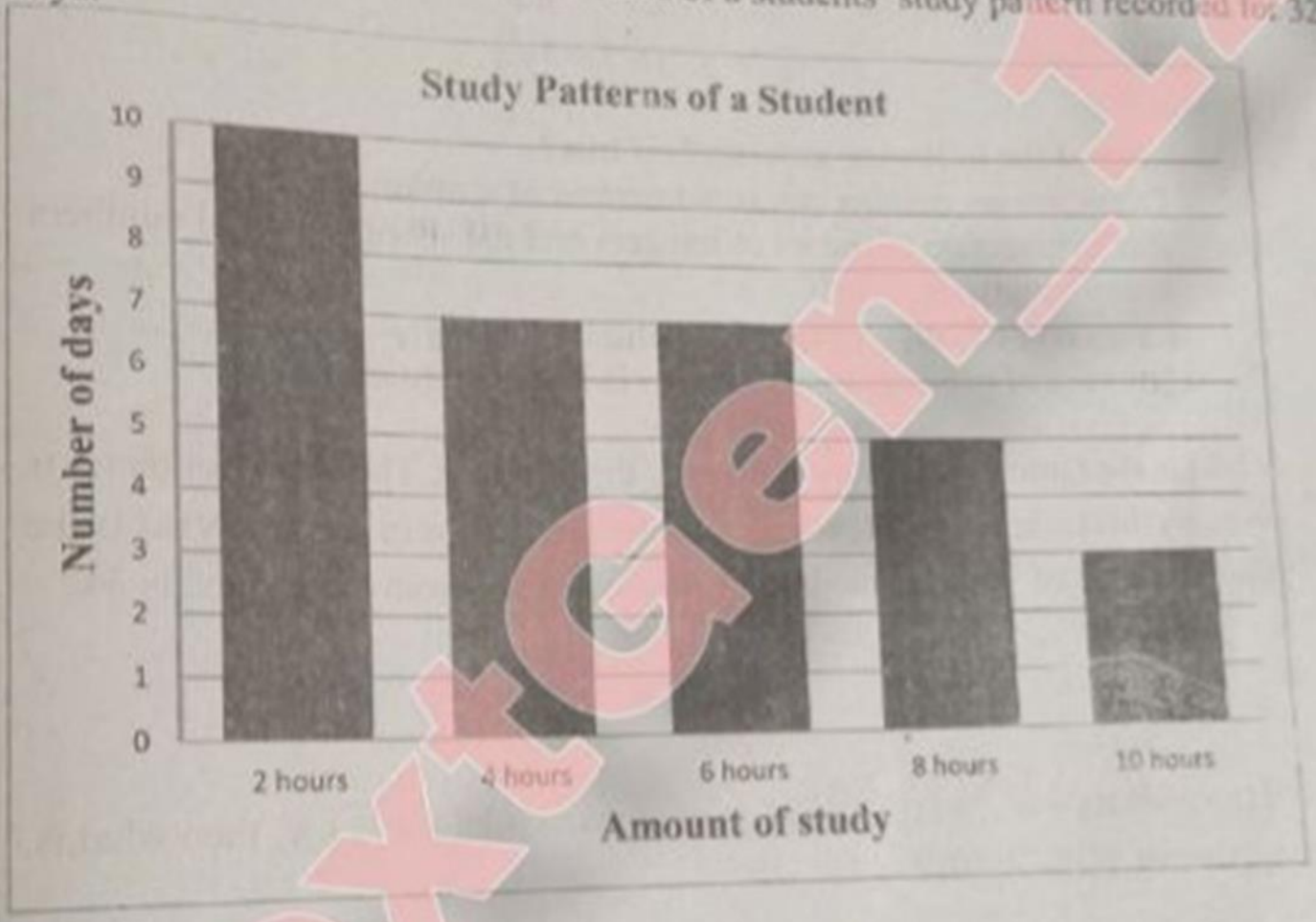
51. What is the possible value of the missing term x in the sequence $-1, 0, 1, 2, -1, 8, 1, 26, -1, x, 1, 242, -1, 728, 1, \ldots$?

A. 54
B. 80
C. 36
D. 34

Instructions: For Questions **52 – 54** use the following information and answer each question based on the information therein.

The following bar graph shows the data of a students' study pattern recorded for 32 days.



52. How many days did the student study less than 8 hours?

A. 18
B. 24
C. 6
D. 12

53. How many days did the student study more than the average amount of the study?

A. 5
B. 17
C. 8
D. 15

54. Which time in hours is the median amount of the study?

A. 6
C. 2
D. 4

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55. Points A, B and C are located on a circle with center O and radius 2 units long. If A, B and C are joined to form an equilateral triangle, then what is the area of triangle ABC in square units?

A. 3
B. 1
C. $\sqrt{3}$
D. $3\sqrt{3}$

56. Which one of the following statements is true?

A. Every integer number can be numerator of a rational number.
B. The intersection of the set of integers and the set of irrational numbers is non-empty set.
C. Every non-negative integer is a natural number.
D. The sum of two irrational numbers is irrational number.

57. A ball is shot into the air from the top of the building. The height in meter is given by $h(t) = kt - t^2 + 30$, where t is the time taken in second What is the possible value of k if the maximum value of height from the ground is 34?

A. $\sqrt{2}$
B. 5
C. 4
D. 2

58. If $f(x) = \sin \pi x + e^{x^2} + |x| + x^3$ and $g(x) = \cos \pi x + \ln(x+1) + x$, then what is the value of $f(1) - 2g(0)$?

A. e
B. 0
C. $\ln 2$
D. $e + 2$

59. If a spherical soccer ball has a volume of $36\pi\,cm^3$, then which one of the following is the surface area of the ball in square centimeter?

A. $\frac{16\pi}{3}$
B. 36π
C. 12π
D. $\frac{32\pi}{3}$