

# NATIONAL OLYMPIAD STUDENT OF THE YEAR AWARD

Celebrating Excellence in Educational Leadership


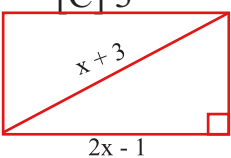
## 2023 Screening Examination Guide

**Duration:** 90 Minutes

**ATTEMPT ALL QUESTIONS**

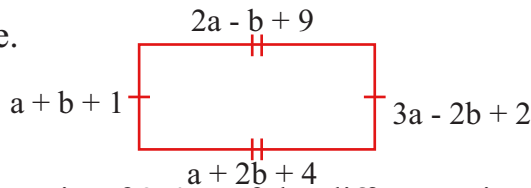
**SENIOR SEC.  
CATEGORY**

### MATHEMATICS

- A real estate company depreciates its assets by 10% per annum. What is the current value of a property acquired three years ago at ₦4,000,000?  
[A] ₦2,800,000 [B] ₦3,600,000 [C] ₦3,240,000 [D] ₦2,916,000
- A rectangular picture measuring 8cm by 6cm is enclosed by a frame 1.5cm wide, calculate the area of the frame.  
[A] 51cm<sup>2</sup> [B] 33cm<sup>2</sup>  
[C] 48cm<sup>2</sup> [D] 23.3cm<sup>2</sup>  

- A cyclist rode for 8 hours at a certain speed, he then tripled his speed and rode for another 4 hours, altogether he covered a distance of 20,000km. Calculate his average speed in the last four hours.  
[A] 4000km/h [B] 3000km/h [C] 1000km/h [D] 5000km/h
- If a circular paper disc is trimmed in such a way its circumference is reduced in the ratio of 3:5, in what ratio is the surface area reduced?  
[A] 9:15 [B] 6:10 [C] 9:25 [D] 5:3
- Derive the equation whose roots are 1 and -2/3  
[A] 3y<sup>2</sup> + y - 2 = 0 [B] 3y<sup>2</sup> - y + 2 = 0 [C] 3y<sup>2</sup> + y + 2 = 0 [D] 3y<sup>2</sup> - y - 2 = 0
- Chioma is a boarding student at NTIC, Abuja who spends 1/4 of her monthly stipend on refreshment, 1/3 on cinema and 2/5 of the remaining amount on charity and had ₦9,000 left for savings. Calculate her monthly stipend.  
[A] ₦36,000 [B] ₦18,000 [C] ₦27,000 [D] ₦45,000
- X varies directly as the square of y and inversely as the cube root of z and x = 2 when y = 4, z = 8. What could be the value of y when x = 3 and z = 27?  
[A] 8 [B] 6 [C] 2 3 [D] 9
- The mean score of a group of students who passed African Mathematics Olympiad exam in Kaduna is 100. When seven students who failed the exam with a cumulative score of 200 is added to their scores, the new mean becomes 50. How many students passed the exam?  
[A] 10 [B] 5 [C] 3 [D] 30
- Calculate the perimeter of the rectangle below.  
[A] 36cm [B] 18cm  
[C] 48cm [D] 14cm  

- The officials of African Olympiads decided to reward the most outstanding students a quarter of the proceeds generated from registration. If the best student got 40% and the third got 25%, how much was generated from registration if the first runner up got ₦70,000?  
[A] ₦800,000 [B] ₦600,000 [C] ₦400,000 [D] ₦200,000
- If 5 men dig 10 deep wells in 8 days, how many wells can be dug by 6 men in 24 days?  
[A] 28 [B] 36 [C] 40 [D] 48
- Calculate the surface area of a cylinder of base radius 14cm and height 20cm in cm<sup>2</sup> (π = 22/7).  
[A] 2992cm<sup>2</sup> [B] 4309cm<sup>2</sup> [C] 5229cm<sup>2</sup> [D] 9292cm<sup>2</sup>
- A pentagon has four of its angles equal. Find the size of each of the four angles if the fifth angle is 60°. [A] 108° [B] 120° [C] 125° [D] 60°

14. Calculate the area of the rectangle.

- [A]  $44\text{cm}^2$   
[C]  $78\text{cm}^2$



- [B]  $112\text{cm}^2$   
[D]  $120\text{cm}^2$

15. The ages of three friends are in the ratio of 3:4:5. If the difference in age between the youngest and eldest friend is 54 years, find the sum of the ages of all three friends.

- [A] 108 years [B] 432 years [C] 324 years [D] 135 years

16. If the Mean of the table below is 5, what is the probability that a student picked at random scored below the mean score?

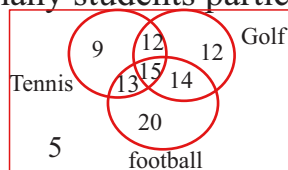
- [A]  $7/40$   
[C]  $5/8$

Scores	3	4	5	6	7	8
Frequency	5	$y-1$	$y$	9	4	1

- [B]  $1/8$   
[D]  $3/8$

17. The Venn diagram shows the percentage of students who participated in various sports in a survey of 500 students. How many students participated in a single sport only?

- [A] 41 students  
[C] 205 students



- [B] 75 students  
[D] 195 students

18. Find the sum of the first seven terms of a G.P with third and fifth terms as 16 and 64 respectively.

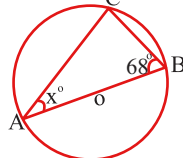
- [A] 256 [B] 386 [C] 1024 [D] 508

19. Rearrange in descending order of magnitude.  $47_{\text{eight}}$ ,  $64_{\text{six}}$  and  $72_{\text{five}}$ .

- [A]  $64_{\text{six}}$ ,  $47_{\text{eight}}$  and  $72_{\text{five}}$  [B]  $72_{\text{five}}$ ,  $47_{\text{eight}}$  and  $64_{\text{six}}$  [C]  $47_{\text{eight}}$ ,  $64_{\text{six}}$  and  $72_{\text{five}}$  [D]  $72_{\text{five}}$ ,  $64_{\text{six}}$  and  $47_{\text{eight}}$

20. In the diagram, O is the centre of the circle. If  $\angle ABC = 68^\circ$ , find the the value of  $\angle CAB$

- [A]  $90^\circ$   
[C]  $22^\circ$



- [B]  $68^\circ$   
[D]  $34^\circ$

21. A pole of length 30cm was measured as 31.7cm. Calculate the percentage error to 2 S.F.

- [A] 5.6 [B] 5.67 [C] 5.4 [D] 5.7

22. The volume of a certain sphere is numerically equal to twice its surface area. Find its diameter.

- [A] 6 [B] 9 [C] 12 [D] 6

23. P and Q are two sets such that  $n(P \cup Q)$  is 50,  $n(P)$  is 40 and  $n(Q)$  is 18. What is  $n(P \cap Q)$ ?

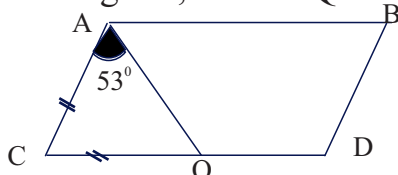
- [A] 10 [B] 8 [C] 32 [D] 58

24. For what value(s) of x is the expression  $\frac{2(x-1)}{x^2-9}$  undefined?

- [A]  $x = 0$  or  $3$  [B]  $x = 1$  or  $-3$  [C]  $x = 3$  or  $-3$  [D]  $x = -1$  or  $3$

25. In the figure, ABCD is a parallelogram,  $AC = CQ$  and  $\angle CAQ = 53^\circ$ . Calculate the size of  $\angle BAQ$

- [A]  $74^\circ$   
[B]  $106^\circ$   
[C]  $127^\circ$   
[D]  $53^\circ$



26. If the sum of x,  $(x + 10)$  and  $(3x - 15)$  is an obtuse angle, what could be the value of x?

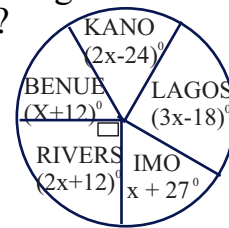
- [A]  $35^\circ$  [B]  $40^\circ$  [C]  $15^\circ$  [D]  $170^\circ$

27. An airplane flew ykm due east to a point P and continues ykm due north to point Q. Find the bearing of Q from the starting point.

- [A]  $315^\circ$  [B]  $225^\circ$  [C]  $135^\circ$  [D]  $45^\circ$

28. The pie-chart shows the revenue allocation pattern for five states in Nigeria. What percentage allocation accrued to Kano State if the total revenue was ₦60 billion?

- [A] 17%  
[B] 15%  
[C] 22.5%  
[D] 27%

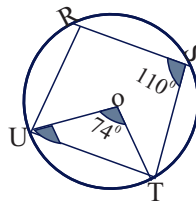


29. A car travels at an average speed of 216km/h. How long will it take the car to arrive a destination that is 960 meters ahead?

- [A] 60 seconds                      [B] 8 seconds                      [C] 16 seconds                      [D] 36 seconds

30. In the diagram, O is the centre of the circle,  $\angle UOT = 74^\circ$  and  $\angle RST = 110^\circ$ , Calculate  $\angle RUO$

- [A]  $17^\circ$   
[B]  $53^\circ$   
[C]  $70^\circ$   
[D]  $106^\circ$



### CIVIC EDUCATION

31. The smooth operation of the public service in Nigeria is being hampered by?  
A. debt burden                      B. adequate training                      C. privatization                      D. bribery and corruption
32. Which of the following is not a major reason for political apathy?  
A. political violence                      B. unfulfilled promises                      C. bad governance                      D. Cross carpeting phenomenon
33. The most suitable type of democracy for a small village or community is .....  
A. constitutional democracy                      B. indirect democracy                      C. communal democracy                      D. direct democracy
34. Operation of the rule of law could be undermined by?  
A. existence of civil society groups                      B. existence of free press  
C. establishment of administrative tribunal                      D. encouragement of effective opposition
35. In a democratic government, franchise is given to all .....  
A. Party members                      B. resident adults                      C. adult citizens                      D. opinion ;leaders
36. Which of the following concept can guarantee adherence to the rule of law?  
A. Political Immunity                      B. political gerrymandering  
C. National development                      D. Representative democracy
37. The body established and entrusted with the power and authority to direct the affairs of a State is .  
A. Federal executive council                      B. State Legislative                      C. Trusteeship                      D. Government
38. One of the functions of local government is .....  
A. settlement of intra party crisis..                      B. Making of bye laws  
C. formulation of monetary policies                      D. delimitation of constituencies
39. The universal declaration of human rights (UDHR) was adopted by..  
A. Economic Communities of west African States                      B. United Nations Organization?  
C. African Union                      D. European Union
40. In the contemporary society, youths can display nationalistic role in the following ways EXCEPT  
A. discouraging corrupt practices.                      B. exploiting the environment for the people of the community  
C. contributing to the development of the society..                      D. showing indifference to National values
41. The establishment of NDLEA by the government was a measure to.....  
A. make drugs available for the masses                      B. prevent drug abuse  
C. encourage the use of illicit drugs                      D. support importation of drugs
42. Which of the following is NOT a common way by which people take drugs?  
A. ingestion                      B. injection                      C. intrusion                      D. Inhalation
43. Which of the following is NOT a skill for settling inter-communal conflict?  
A. war                      B. dialogue                      C. mediation                      D, arbitration
44. Who established the first political party in Nigeria?  
A. Ahmadu Bello                      B. Obafemi Awolowo                      C. Herbert Macauley                      D. Nnamdi Azikiwe

45. The National Party of Nigeria existed during the \_\_\_\_\_ republic? .  
A. First                      B. Second                      C. Third                      D. Fourth
46. Nigeria operates a \_\_\_\_\_ constitution  
A. Confederal                      B. Flexible                      C. Rigid                      D. Unitary
47. The Nigerian 1979 constitution is an example of a?  
A. confederal constitution B. flexible constitution C. unitary constitution D. written constitution
48. Bicameralism refers to \_\_\_\_\_ legislature  
A. one chamber                      B. Two chamber                      C. four chambers                      D. three chambers
49. The Federal Road Safety Commission (FRSC) was established in the year?  
A. 1978                      B. 1988                      C. 1989                      D. 1990
50. The Supreme Court of Nigeria helps in law .....  
A. Application                      B. Interpretation                      C. Enforcement                      D. Drafting
51. Which of the following instrument is not used by a civil society group?  
A. Propaganda                      B. Boycott                      C. Protest                      D. Violence
52. Rates are collected in Nigeria by...  
A. Federal Inland Revenue Service                      B. State Ministry of Finance  
C. Local government council                      C. Council of traditional rulers
53. In the public service, another name for red-tapism is .....  
A. Theocracy                      B. Bureaucracy                      C. Autocracy                      D. Democracy
54. Which of the following is NOT a reason for self reliance?  
A. Creation of employment opportunities                      B. Innovation and Creativity  
C. Diversification                      D. Quest for white collar job
55. In the constitution, the area where both federal and state government exercise joint authority is ....  
A. Residual List                      B. Concurrent List                      C. Exclusive list                      D. Reserved List
56. One of the skills that can be used in resolving inter- communal conflicts is?  
A. Coercion                      B. Mediation                      C. Suppression                      D. Harassment
57. Road signs primarily serves as .....  
A. symbols to correct road users                      B. sign to aid federal road safety corps to apprehend defaulters  
C. device to guard traffic of police command                      D. precautionary devices to guide users.
58. Which of the following should NOT be encouraged by a responsible parent.?  
A moral development B religious fundamentalism C spiritual development D. mutual respect
59. Chapter IV (four) of the 1999 constitution is about .....  
A. composition of the National Assembly                      B. fundamental human right  
C. procedures for the impeachment of the president.                      D. information on quorum in the senate.
60. The standards considered ethical by an individual or the society is known as ?  
A. Dignity                      B. Right                      C. Values                      D. Materialism

### ENGLISH LANGUAGE

#### **INSTRUCTION: IDENTIFY THE CORRECTLY SPELT WORD IN EACH SENTENCE**

61. The government needs to be more proactive to ..... the sufferings of the flood victims.  
(A) amelliorate                      (B) armeliorate                      (C) ammeliorate                      (D) ameliorate
62. Our journey towards Nationhood is sometimes faced with ..... challenges.  
(A) summountable                      (B) summantable                      (C) surmountable                      (D) surmoutable
63. .... is an infection of the lungs often caused by bacteria and fungi.  
(A) pneumonia                      (B) pneumonae                      (C) pneumonea                      (D) pnemonia
64. The ..... era signaled a rebirth in modern history.  
(A) rennaissance                      (B) renaissance                      (C) rennaissance                      (D) renaissance
65. .... helps to achieve efficiency and control in an organization.  
(A) burueaucracy                      (B) bureacracy                      (C) bureucracy                      (D) bureaucracy
66. Frequent hikes in the prices of petroleum products have ..... the problem of the common man.  
(A) exacebated                      (B) exercabated                      (C) exacerbated                      (D) execarbated
67. The prime minister has called for the ..... of the rebel group.  
(A) ahnihilation                      (B) annihilation                      (C) anihiliation                      (D) annihilation

68. Adekunle displayed his driving skills when he ..... his vehicle into the parking lot.  
(A) mannoevred (B) manoeuvred (C) maneuvered (D) manouevred
69. The new language teacher has an excellent mastery of German .....  
(A) pronounciation (B) pronounsiation (C) prononciation (D) pronunciation
70. The ..... between the warring parties is slated for next week.  
(A) rendezvous (B) rendezvous (C) rendervous (D) rendazvous

**INSTRUCTION: IDENTIFY THE WORD NEAREST IN MEANING IN EACH SENTENCE**

71. The solution to the equation is on the **PENULTIMATE** chapter of the book.  
(A) final (B) first (C) second (D) last but one
72. Electoral violence and malpractice often results in voters **APATHY**.  
(A) sympathy (B) frustration (C) optimism (D) indifference
73. The activities of the separatist group have been **PROSCRIBED** by the government.  
(A) institutionalized (B) banned (C) endorsed (D) legalized
74. The mood at the PTA meeting was **BELLIGERENT**.  
(A) friendly (B) reassuring (C) calm (D) hostile
75. The trial judge insisted that the accused was **COMPLICIT** in the murder case.  
(A) innocent (B) framed (C) blameless (D) colluding
76. The Senegalese National team went to the world cup as the **DARK HORSE**.  
(A) champion (B) previous winners (C) under dog (D) favourite
77. Fatima became **TIMOROUS** as soon as she was asked to present the valedictory speech.  
(A) proud (B) nervous (C) excited (D) surprised
78. The market woman **AVERRED** her son was brutalized by the police.  
(A) swore (B) doubted (C) denied (D) claimed
79. Mr. Bello is **FRUGAL** in his business expenditures.  
(A) prudent (B) impulsive (C) lavish (D) extravagant
80. The banker expressed **RESERVATION** over her decision to invest in the stock market.  
(A) optimism (B) indifference (C) doubt (D) support

**INSTRUCTION: IDENTIFY THE WORD OPPOSITE IN MEANING IN EACH SENTENCE**

81. The press was forced to **RETRACT** its earlier claim on the missing child.  
(A) assert (B) withdraw (C) condemn (D) renounce
82. Public outcry made the military to **RELINQUISH** power after independence.  
(A) acquire (B) hand over (C) retain (D) wield
83. The students were **UNDETERRED** by the learning environment.  
(A) unfazed (B) uninterrupted (C) discouraged (D) undisturbed
84. Mr Kola's investment in shares has **DEPRECIATED**.  
(A) stagnated (B) appreciated (C) declined (D) liquidated
85. The policeman was filled with **SCORN** when he heard our side of the story.  
(A) disdain (B) rage (C) surprise (D) respect
86. The **COVERT** activities of bandits have become a source for concern to all.  
(A) wicked (B) dangerous (C) secret (D) overt
87. Bola has a **CYNICAL** perspective about politicians.  
(A) skeptical (B) silly (C) biased (D) optimistic
88. The decision to travel for the Christmas holiday was **UNANIMOUS**.  
(A) misguided (B) plausible (C) collective (D) divisive
89. The minister's attempt to negotiate with the striking lecturers was **FUTILE**.  
(A) insincere (B) questionable (C) successful (D) sterile.
90. After the war, the conquered territories became increasingly **VINDICTIVE**.  
(A) vengeful (B) angry (C) dominant (D) forgiving

**INSTRUCTION: IDENTIFY THE OPTION THAT CORRECTLY FILLS THE GAP**

91. The minister ..... the meeting on a sad note.  
(A) rounded up (B) rounded of (C) rounded in (D) rounded off
92. The secretary acted in accordance ..... laid down instructions.  
(A) to (B) for (C) from (D) with
93. All faulty cars will go under the hammer this new year. This means that all faulty cars will be .....  
(A) repaired (B) destroyed (C) auctioned (D) replaced
94. Mr. Jack has throw in the towel in the governorship race. This means that he has ..... the election.  
(A) won (B) contested (C) given up (D) lost
95. There is no love lost between Jane and Joe. This means Jane and Joe are.....  
(A) lovers (B) friends (C) courting (D) foes

**COMPREHENSION PASSAGE**

Politics in pre-colonial times did not involve the partisan type of electioneering campaign that we now have. The society was ruled by a king or an emir and his traditional chiefs or by the council of elders or clan heads. Where there existed the hierarchical system as in the Yoruba and Hausa kingdoms, successions to the throne was mainly patriarchal, a recorded exception was the case of Queen Amina of the Zazzau Empire who ruled in the 15th century A.D.

A host of unsung and unrecorded women regents and at times women village rulers abound, especially in the present Ondo State where some influential traditional female chiefs and regents still exist. In Ibadan, the famous Efunsetan Aniwura held political as well as economic **SWAY** and it took a lot of drive, brain work and political engineering for the then king and his council of chiefs to subdue her. The history of the various towns and villages of the period could boast of such women who were actively engaged in the running of government.

In the Igbo society, a rise to leadership position was through demonstrated ability in fostering societal survival rather than heritage. Women's voice in politics of each clan is given focus either through the guild of wives, the guild of daughters, or the market woman's guild. Women through these organs, could make their feelings known on any issue affecting their community as a whole or females in particular. Thus unpopular edicts or decrees could be revoked or reviewed as a result of mounted pressure from any of these female associations. No decision was usually taken by the men without prior consultation with the leaders of the women's groups.

It must however be emphasized that the degree of women participation in politics was yet much limited when compared to that of men.

96. Electioneering campaign and partisanship are features of the .....  
A. pre-colonial political era B. Yoruba kingdom C. modern era D. Igbo society
97. Which of the following statements is correct according to the passage?  
A. pre-colonial era saw the dominance of female traditional rulers over their male counterparts.  
B. Queen Amina was a rare example of female traditional ruler who inherited the throne  
C. leadership ascendancy was mainly hereditary in every society.  
D. there exist a complete recorded history of all female traditional rulers
- 98 Which of the following statements is INCORRECT in the Igbo society?  
A. Women are carried along in decision making B. female folks are organized into structures  
C. personal accomplishments determines leadership D leadership is an inheritance
99. The writer at least concluded that.....  
A. women are better leaders B. leadership position mustn't be inherited  
C. women must have a say in leadership D. men are dominant in politics and leadership
100. Another word that can replace 'SWAY' as used in the passage is .....  
A. influence B. interest C. resources D. right