KHOJ-2025

Exam for Young Scientists..!
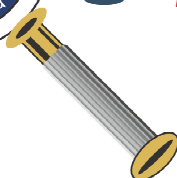
SAMPLE QUESTIONS PAPER

CLASS 8

SCIENCE APTITUDE TEST

SCIENCE APTITUDE TEST

| TIME : 3 HOURS | MAX MARK : 400 | DATE : 15 - 10 - 2023 |

INSTRUCTIONS

Please read the instructions carefully. You are allotted 5 minutes specifically for this purpose.

Caution : Class, as given on paper above MUST be correctly marked on the answer OMR sheet before attempting the paper. Wrong Class will give wrong results.

1. This booklet consists of 100 questions. Question paper consists of 4 sections. Marking scheme is given in table below:

Section	Subject	Questions No.	Making Scheme for each questions	
			Correct Answer	Wrong Answer
PART - **I**	Mental Ability	15	4	-1
PART - **II**	Mathematics	40	4	-1
PART - **III**	Physics & Chemistry	30	4	-1
PART - **IV**	Biology	15	4	-1

3. Answers have to be marked on the OMR sheet. The Question Paper contains blank spaces for your rough work. No additional sheets will be provided for rough work.

4. Blank papers, cellular phones, smart watches, log tables, slide rule, calculator and electronic devices, in any form, are not allowed.

PART - I : MENTAL ABILITY

1. How many triangles does the following figure contain?
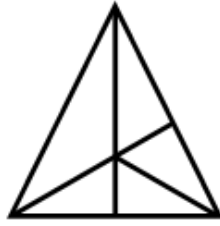
   (a) 11   (b) 10
   (c) 6   (d) 12

2. Identify the analogy in the problem figure:
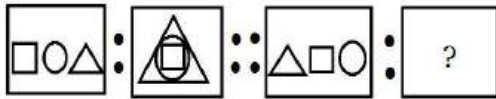
   (a)   (b)

   (c)   (d)

3. A man is facing North-west. He turns 90° in the clockwise direction, then 180° in the anticlockwise direction and then another 90° in the same direction. Which direction is he facing now?

   (a) South   (b) South-East
   (c) West   (d) South-West

4. Problem figure:

   Answer figure:

   (a)   (b)

   (c)   (d)

5. Find the missing term :

   (a) 125   (b) 100
   (c) 123   (d) 64

6. Find the missing term.
   a_c_ba_bcc_a
   (a) acab   (b) cbab
   (c) bcab   (d) beac

7. What will be the water image of given diagram

   ?

   (a)   (b)

   (c)   (d)

8. Find the missing term :
   11, 15, 21, 29,?
   (a) 36   (b) 37
   (c) 39   (d) 38

Space for Rough Work

9. Manish is fourteenth from the right end in a row of 40 boys. What is his position from the left end?
   - (a) 24th
   - (b) 25th
   - (c) 26th
   - (d) 27th

10. Today is Monday. After 61 days, it will be.
    - (a) Tuesday
    - (b) Monday
    - (c) Sunday
    - (d) Saturday

11. AP, CN, EK, GG, ?
    - (a) LD
    - (b) IB
    - (c) ID
    - (d) JB

12. Amit said, "This girl is the wife of the grandson of my mother." How is Amit related to the girl?
    - (a) Father
    - (b) Father-in-law
    - (c) Grand father
    - (d) Husband

13. Select the odd one from the following
    - (a) July
    - (b) May
    - (c) June
    - (d) March

14. If JUMP is coded as KVLO then GIVE will be coded as :
    - (a) HHWD
    - (b) HIVE
    - (c) HJUD
    - (d) HJVD

15. Show the same relationship as given in the below statement.
    Aluminium: Bauxite:: Iron: ?
    - (a) Pyrite
    - (c) Pyrdusite
    - (b) Magnesite
    - (d) Haematite

PART - II : MATHEMATICS

1. A rational number between 3 and 4 is:
   - (a) 3/2
   - (b) 4/3
   - (c) 7/2
   - (d) 7/4

2. $\dfrac{4+x}{3} + \dfrac{7}{4} = \dfrac{3-x}{2} + \dfrac{5}{4}$, then solve for x.
   - (a) $\dfrac{-2}{5}$
   - (b) $\dfrac{3}{5}$
   - (c) $\dfrac{5}{3}$
   - (d) $-\dfrac{5}{3}$

3. Two numbers are in the ratio 5:3. If they differ by 18, what are the numbers?
   - (a) 45, 27
   - (b) 50, 32
   - (c) 40, 22
   - (d) none of these

4. A polygon with minimum number of sides is
   - (a) Pentagon
   - (b) Square
   - (c) Triangle
   - (d) Angle

5. The angle sum of all interior angles of a convex polygon of sides 7 is
   - (a) $180°$
   - (b) $540°$
   - (c) $630°$
   - (d) $900°$

6. $\sqrt{1.0816} = ?$
   - (a) 1.04
   - (b) 1.286
   - (c) 0.904
   - (d) 1.35

7. What will be the value of 'x' in Pythagorean triplet (6,8, x)?
   - (a) 5
   - (b) 7
   - (c) 10
   - (d) 11

8. Which is the greatest three-digit perfect cube?
   - (a) 125
   - (b) 343
   - (c) 729
   - (d) 512

9. The smallest natural number by which 243 must be multiplied to make the product a perfect cube is _____ .
   - (a) 3
   - (b) 9
   - (c) 8
   - (d) 7

Space for Rough Work

10. What will be the positive value of x, where $4(x + 9)^2 = 676$?

(a) 5   (b) 8

(c) 4   (d) 6

11. The car that Amit own can go 150 km with 25 litres of petrol. How far will it go with 30 litres of petrol?

(a) 125 km   (b) 180 km

(c) 250 km   (d) none of these

12. Find the ratio of speed of a cycle 15 km per hour to the speed of scooter 30 km per hour.

(a) 2 : 1   (b) 1 : 2

(c) 4 : 5   (d) none of these

13. What will be the bill amount if the cost of a toy is Rs 450 and the sales tax is 5%?

(a) Rs 472.5   (b) Rs 437.5

(c) Rs 460   (d) Rs 455

14. At what rate percent per annum will a sum of Rs. 7500 amount to Rs. 8427 in 2 years if compounded annually?

(a) 5%   (b) 4%

(c) 6%   (d) 8%

15. What are the coefficients of y in the expression $4x - 3y$?

(a) 4   (b) -3

(c) 3   (d) none of these

16. At the most, how many cakes of soap with dimensions $8 \, cm \times 6 \, cm \times 4 \, cm$ can be placed in a wooden box of inner measures $28 \, cm \times 16 \, cm \times 12 \, cm$?

(a) 35   (b) 24

(c) 28   (d) 36

17. Value of expression $a(a^2 + a + 1) + 5$ for $a = 0$ is

(a) a + 5   (b) 1

(c) 6   (d) 5

18. Which one is a 3D shape?

(a) Rectangle   (b) circle

(c) cube   (d) square

19. If $(729)^{x+3} = (27)^{5+x}$, then find the value of x^x.

(a) 1   (b) 0

(c) -1   (d) Undefined

20. What will be the number of faces if there are 6 vertices and 12 edges?

(a) 8   (b) 10

(c) 12   (d) 18

21. The area of parallelogram is

(a) base + height   (b) base x height

(c) base x base   (d) height x height

22. The circumference of circle whose diameter is 14 cm will be

(a) 44 cm   (b) 88 cm

(c) 44 cm^2 (d) 88 cm^2

23. The radius of wheel is 0.25 m. How many revolutions will it make in covering 11 km?

(a) 2800   (b) 4000

(c) 5500   (d) 7000

24. A cuboidal vessel is 10 m long and 8 m wide. How high must it be made to hold 380 cubic metres of a liquid?

(a) 4.75 m   (b) 7.85 m

(c) 4.75 cm   (d) none of these

Space for Rough Work

25. Express 729 as a power of 3
    (a) 3^8 (b) 3^6
    (c) 9^3 (d) none of these

26. In standard form 52,00,00,000 is equal to _____ .
    (a) 5.2×10^7 (b) 5.2×10^8
    (c) 52×10^8 (d) $52 \times 100,00,000$

27. Bansi has 3 times as many two-rupee coins as he has five-rupee coins. If he has in all a sum of Rs 77, how many coins of each denomination does he have?
    (a) 7, 21   (b) 3, 9
    (c) 6, 18   (d) 5, 15

28. The price of a scooter was Rs 34,000 last year. It has increased by 20% this year. What is the price now?
    (a) Rs 40800   (b) Rs 32300
    (c) Rs 40000   (d) none of these

29. A sum amounts to Rs. 3720 in 8 months at 5% per annum simple interest. The sum is
    (a) Rs 3500   (b) Rs 3600
    (c) Rs 3560   (d) Rs. 3620

30. At simple interest, a sum becomes double of itself in 5 years. The rate of interest percent per annum is
    (a) 8%   (b) 5%
    (c) 10%   (d) 20%.

31. On simplifying (a + b - 3) - (b - a +3) + (a - b + 3) the result is
    (a) a - b + 3   (b) a - b - 3
    (c) 3a - b - 3   (d) 3a+b+3

32. Subtracting 7x + y from -x + y gives
    (a) 6x + 2y   (b) 8x + 2y
    (c) -8x   (d) 8x

33. $\sqrt{\sqrt[3]{343} \times \sqrt{784}} =$ _____ .
    (a) 7   (b) 14
    (c) 21   (d) 28

34. What will be the smallest positive integer by which 2916 should be multiplied so that the quotient is a perfect cube?
    (a) 3   (b) 2
    (c) 4   (d) 9

35. The area of a square and a rectangle are equal. If the side of the square is 40 cm and the breadth of the rectangle is 25 cm, find the length of the rectangle.
    (a) 60 cm   (b) 62 cm
    (c) 64 cm   (d) 68 cm

36. A boat can cover 48 km downstream in 3 hours. It can cover a 40 km upstream in 4 hours. What is the speed of the boat in still water (in kmph)?
    (a) 13   (b) 15
    (c) 17   (d) 19

37. Find the area of a circle (in sq. cm) whose circumference is equal to the perimeter of a parallelogram of sides 65 cm and 67 cm.
    (a) 5544   (b) 4545
    (c) 5454   (d) 4455

38. Two successive discounts of 20% and 25% are equal to a single discount of_____.
    (a) 30%   (b) 45%
    (c) 35%   (d) 40%

39. Find a number which leaves a remainder of 6 when divided by 8, 12, or 15.
    (a) 54   (b) 78
    (c) 102   (d) 126

40. The HCF and the LCM of two numbers are 12 and 72, respectively. If one of the numbers is 24, then what is the other number?
   (a) 26   (b) 36
    (c) 16   (d) 14

Space for Rough Work

PART - III : PHYSICS & CHEMISTRY

1. A body travels 100 m in 10 s. Then,
   (A) the average velocity of the body is 10 m s^{-1} only when the body travels in a straight path.
   (B) the average speed of the body is 10 m s^{-1} irrespective of its direction of motion.
   (a) Only A is true.
   (b) Only B is true.
   (c) Both A and B are true.
   (d) Both A and B are false

2. A ball is rolling with a velocity 20 m s^{-1} on a cement floor and stops in 10 s. What is the acceleration produced in the ball?
   (a) −20 m s^{-2}
   (b) −200 m s^{-2}
   (c) −2 m s^{-2}
   (d) +20 ms^{-2}

3. A person starts from his house on his bike at 9 a.m. and returns to his house and at 8 p.m. If the odometer reading at 9 a.m. is 4700 km and the average speed of the bike is 20 km h^{-1}, then the odometer reading of the bike at 8 p.m. is _____ km.
   (a) 4900
   (b) 4920
   (c) 4970
   (d) 4810

4. Assertion (A): When a person swims, he pushes the water in the same direction as his motion.
   Reason (R): Both action and reaction act on the same body.
   (a) A and R are true and R is the correct explanation of A.
   (b) A and R are true, but R is not the correct explanation of A.
   (c) A is true but R is false.
   (d) Both A and R are false.

5. Sound produced by a tuning fork travels from air to glass. Which of the following physical quantities remains the same?
   (a) Velocity
   (b) Frequency
   (c) Wavelength
   (d) Amplitude

6. The displacement time graph of a simple pendulum is shown below. Calculate its frequency in Hz.

   (a) 0.01
   (b) 2
   (c) 0.3
   (d) 0.25

7. The normal human body temperature is 98.4° F. If the body temperature of a person is 313 K, then the person _____.
   (a) has normal temperature.
   (b) high fever.
   (c) has temperature less than normal temperature.
   (d) nothing can be said about his health condition.

8. The length of a mercury column in a thermometer at the melting point of ice is 2 cm and at the boiling point of water it is 10 cm. What is the temperature of a body if the mercury thread is at 5 cm?
   (a) 25° C
   (b) 50° C
   (c) 37.5° C
   (d) 60° C

Space for Rough Work

9. When can the temperature of a body change?
   (a) only when a body absorbs heat.
   (b) only when a body is kept in contact with another body at a lower temperature.
   (c) only when a body is heated in a heating device.
   (d) None of these

10. What happens when two identical bodies 'A' and 'B', which have +10 C and +5 C charge respectively, are connected to each other by means of a metal wire?
    (a) the conventional current flows from A to B.
    (b) the electronic current flows from A to B.
    (c) the electronic current flows from B to A.
    (d) Both (a) and (c).

11. In which of the following electric circuits does the electric bulb shown glows?

(a)

(b)

Silver

(c)

Silk hread

(d)

Silver wire
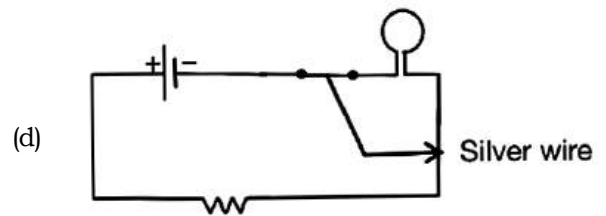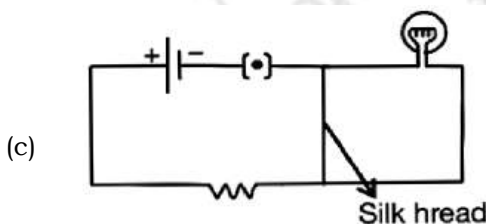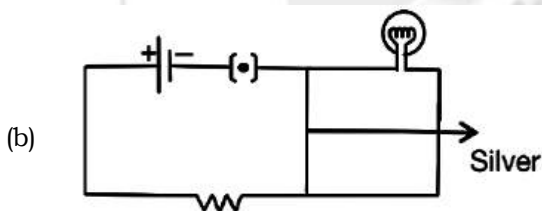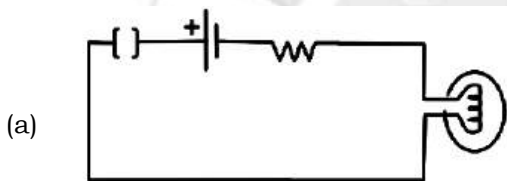
12. Common cause of tsunami is
    (a) floods
    (b) earthquake
    (c) earthquake under sea
    (d) volcanic eruption under sea

13. The process of transfer of charges from a charged object to the earth is called
    (a) lightning
    (b) oscillation
    (c) earthing
    (d) electron movement

14. A thunder is heard 2 seconds after the flash of lightning is seen. Lightning has occurred at a distance of _____ from you. (speed of sound in air is 330 m s^{-1})
    (a) 220 m   (b) 330 m
    (c) 660 m   (d) 600 m

15. Choose the correct statement(s).
    (a) Electromagnets are not used in electric bells.
    (b) To know the presence of current, a tester is to be used.
    (c) When electric current passes through a wire, a magnetic field is created around it.
    (d) Both (b) and (c)

Space for Rough Work

16. Match the entries of Column A with those of Column B.

	Column A		Column B
(i)	Ferric	(A)	+2
(ii)	Cuprous	(B)	0
(iii)	Stannic	(C)	+1
(iv)	Mercuric	(D)	+3
(v)	Potassium	(E)	+4

(a) (i) → (B); (ii) → (E); (iii) → (A); (iv) → (C); (v) → (D)

(b) (i) → (D); (ii) → (C); (iii) → (E); (iv) → (A); (v) → (B)

(c) (i) → (D); (ii) → (E); (iii) → (A); (iv) → (C); (v) → (B)

(d) (i) → (B); (ii) → (C); (iii) → (E); (iv) → (A); (v) → (D)

17. Arrange the following compounds in increasing order of the numbers of oxygen atoms present in them.
(A) Calcium phosphate
(B) Calcium nitrate
(C) Calcium carbonate
(D) Calcium sulphate
(E) Calcium oxide
(a) ABCDE (b) ECDBA
(c) ABDCE (d) DBCAE

18. An element is a good conductor of electricity, lustrous, and it is used as an electrode in electrometallurgical processes due to its high resistance to heat and chemicals. The constituent atom of the element is ____.
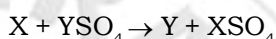(a) Br (b) Cl
(c) C (d) Si

19. Which of the following alloy has copper as a major constituent?
(a) Gun metal (b) Magnox
(c) Nichrome (d) Satellite

20. The formula of chloride of element 'X' is XCl_3. X can form different oxides in which X exhibits valencies same as XCl_3 and one unit lower than that in XCl_3. The formulae of the oxides are __ and __.
(a) XO, X_2O_3 (b) X_2O, XO_3
(c) X_2O, X_2O_3 (d) XO_2, X_2O_4

21. Identify 'X' and 'Y' in the given chemical equation.
$X + YSO_4 \rightarrow Y + XSO_4$
(a) Zn and Ca (b) Zn and Cu
(c) Ag and K (d) H and Al

22. Which of the following metals can protect itself from further reaction with oxygen?
(a) Ca (b) Al
(c) Cu (d) K

23. Where can dry powder fire extinguishers not used?
(a) Class F fires
(b) Fires that are in enclosed spaces
(c) Fires that involves electrical equipment which are over 1000 V
(d) All of the above

24. Identify the name of the harmful gas released in coal mines.
(a) Carbogen (b) Natural gas
(c) Phosgene (d) Marsh gas

Space for Rough Work

25. Match the statements of Column A with those of Column B.

Column A		Column B
(i)	Sodium chloride	(A) Detergents
(ii)	Sodium bicarbonate	(B) Fertilizer
(iii)	Washing soda	(C) Food additive
(iv)	Potassium nitrate	(D) Laxative
		(E) Fire extinguisher
		(F) Eye lotion

(a) (i) → (C); (ii) → (D); (iii) → (A); (iv) → (B)

(b) (i) → (C); (ii) → (E); (iii) → (A); (iv) → (B)

(c) (i) → (E); (ii) → (A); (iii) → (B); (iv) → (C)

(d) (i) → (C); (ii) → (F); (iii) → (A); (iv) → (B)

26. Which of the following is majorly present in the ocean?

(a) Calcium Carbonate

(b) Magnesium Sulphate

(c) Sodium Chloride

(d) Potassium Chloride

27. What are Antacids?

(a) Salts   (b) Acids

(c) Buffer   (d) Bases

28. A change in which generally the original substance can be obtained back by change of conditions is called:

(a) reversible change   (b) physical change

(c) chemical change   (d) Both (a) and (b)

29. Change of milk to curd is a:

(a) physical change

(b) chemical change

(c) Both physical and chemical change

(d) Neither physical nor chemical change

30. Which of the following statements is correct?

(a) Evaporation is a chemical change

(b) Digestion of food is a chemical change

(c) Burning of paper is a physical change

(d) All of the above

PART - IV : BIOLOGY

1. Assertion (A) : Sexual reproduction involves fusion of male and female gametes to form embryo

   Reason (R) : Gamete is a single cell that can fuse with another gamete of opposite sex

   (a) Both A and R are true and R is the correct explanation for A.

   (b) Both A and R are true but R is the not the correct explanation for A.

   (c) A is true and R is false.

   (d) A is false and R is true.

2. The given figure shows a model demonstrating the mechanism of breathing. What is incorrect about the model?
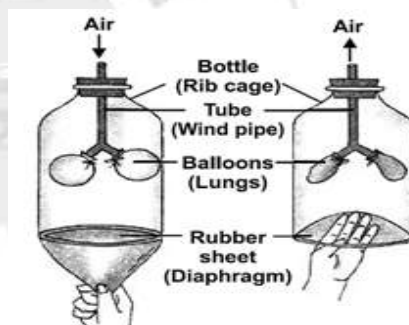

   (a) During inhalation diaphragm moves downwards.

   (b) During exhalation lungs reduce in size.

   (c) During inhalation and exhalation, rib cage does not move.

   (d) During inhalation and exhalation, wind pipe does not move.

3. Which of following diseases is not caused by viruses?

   (a) Cholera   (b) Chickenpox

   (c) Hepatitis   (d) Measles

Space for Rough Work

4. The given figure shows an irrigation method used in agricultural practice.
   Which of the following is correct regarding this irrigation method
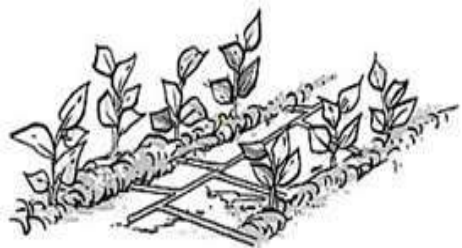
   (a) It is the best technique for watering fruit plants, gardens and trees.
   (b) It is a boon in regions where availability of water is poor.
   (c) The method provides water to the plants drop by drop at their roots.
   (d) All of these.

5. The gas released during the preparation of bread is
   (a) oxygen   (b) carbon dioxide
   (c) nitrogen   (d) sulphur dioxide

6. Read the given statements and select the correct option.
   Statement 1 : Aquatic animals produce large number of eggs and sperms necessary to ensure external fertilization.
   Statement 2 : The eggs swim in water with the help of cilia, and fertilize the sperms.
   (a) Both statements 1 and 2 are true and statement 2 is the correct explanation of statement 1.
   (b) Both statements 1 and 2 are true but statement 2 is not the correct explanation of statement 1.
   (c) Statement 1 is true but statement 2 is false.
   (d) Both statements 1 and 2 are false.

7. Which one of the following is not true about ploughing -
   (a) Loosens the soil
   (b) Aerates the soil
   (c) Makes the soil hard
   (d) Allows easy penetration of roots into the soil

8. Seed drill is used to
   (a) sow the seeds
   (b) remove the weeds
   (c) remove the pest
   (d) mix manure in the soil.

9. Which of the following is not a method of irrigation?
   (a) Drip irrigation   (b) Sprinkler
   (c) Nursery   (d) Canals

10. DPT Vaccine is for:
    (a) Diptheria, Polio, Tetanus
    (b) Diptheria, Pertussis, Tetanus
    (c) Diptheria, Pertussis, Typhoid
    (d) Diptheria, Pertussis, Tuberculosis

11. In Blue green algae, the structure specialised for nitrogen fixation is
    (a) Thylakoid   (b) Harmogonia
    (c) Heterocyst   (d) Endospore

12. Weedicides are used to destroy:
    (a) insects   (b) weeds
    (c) pests   (d) none of these

13. Project Tiger was launched on
    (a) 1 april 1973
    (b) 23 may 1973
    (c) 21 September 1973
    (d) 25 December 1973

14. The cell formed after fertisation is called
    (a) Foetus   (b) Zygote
    (c) Embryo   (d) None of these

15. Vaccine for small pox is discorvered by
    (a) Louis Pasteur
    (b) Alexander Fleming
    (c) Edward Jenner
    (d) John Mendal

Space for Rough Work