

IIT ASHRAM BRINGS...



A QUEST FOR SCIENCE ASPIRANTS !

CLASS 7

SCIENCE APTITUDE TEST

TIME : 2 HOURS

MAX MARK : 300

DATE : 28- 01- 2024

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 75 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	30	4	-1
PART - III	Physics & Chemistry	20	4	-1
PART - IV	Biology	10	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.

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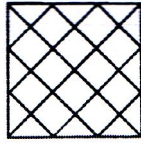
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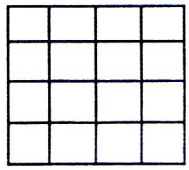
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PART - I : MENTAL ABILITY

1. What is the number of straight lines in the following figure ?



- (a) 11 (b) 14
(c) 16 (d) 17
2. How many squares are there in the following figure ?



- (a) 16 (b) 17
(c) 30 (d) 55
3. Select the odd one from the given alternatives.
- (a) Silk (b) Fur
(c) Milk (d) Rubber
4. In the question, choose the words that show the same relationship as given in the below.
As Earthquake is related to Seismograph in the same way, Milk is related to which ?
- (a) Hydrometer (b) Hygrometer
(c) Spherometer (d) Lactometer

5. In given question, there is a certain relationship between two given words on one side of :: and one word is give on another side of :: while another word is to be found from the given alternatives, having the same relation with this word as the words of the given pair bear. choose the correct alternatives.

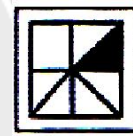
Tea : Leaves :: Coffee : ?

- (a) Leaves (b) Beverage
(c) Seeds (d) Plant

6. What is the value of $(1260 \div 15) \div 7 = ?$

- (a) 12 (b) 58
(c) 122 (d) 588

7. In given question, choose the correct mirror image from alternatives A, B, C and D of the Word / figure (X).



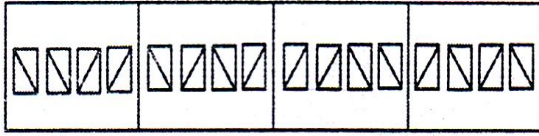
(X)

- (a) (b)
(c) (d)

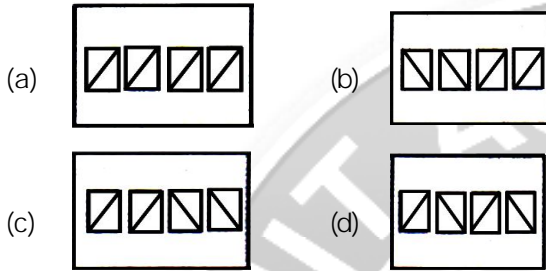
Space for Rough Work

8. Study the problem figures carefully and try to establish the relationship between them from the answer figures. Pick out the figure which most appropriately completes the series.

Problem Figures



Answer Figures



9. If TRIANGLE is coded as SSHBMHKF, then SQUARE would be
- (a) RRIASF (b) RPBVSF
(c) RRTBQF (d) RPBBSD
10. If Eye is called Hand, Hand is called Mouth, Mouth is called Ear, Ear is called Nose and Nose is called Tongue, with which of the following would a person hear?
- (a) Eye (b) Mouth
(c) Nose (d) Ear

11. Find the missing term in the given figures

$$3 \times 5 \times 7 \times 8 = 5783,$$

$$9 \times 5 \times 3 \times 2 = 5329,$$

$$? \times ? \times 8 \times 5 = 2853.$$

- (a) 23 (b) 32
(c) 43 (d) 83
12. Find which one word can not be made from the letters of the given word.

REASONABLE

- (a) ARSON (b) BONES
(c) NOBLE (d) BRAIN
13. If the following words are arranged in an alphabetical order, which word will appear in the second?
- (a) Principal (b) Principle
(c) Principia (d) Principled
14. A meaningful word starting with A is made from the first, the second, the fourth, the fifth and the sixth letters of the word CONTRACT, which of the following is the middle letter of the word?
- (a) C (b) T
(c) O (d) R
15. A is B's sister. C is B's mother. D is C's father. E is D's mother. Then, how is A related to D?
- (a) Grandfather (b) Grandmother
(c) Daughter (d) Granddaughter

Space for Rough Work

PART - II : MATHEMATICS

1. $(-1) \times (-1) \times (-1) \times (-1) \times \dots \times (-1)$ 500 times =
 (a) -1 (b) 1
 (c) 500 (d) -500
2. Which of the following is correct?
 (a) $-12 > -9$ (b) $-12 < -9$
 (c) $(-12) + 9 > 0$ (d) $(-12) \times 9 > 0$
3. The fraction $\frac{84}{98}$ in its lowest terms is
 (a) $\frac{42}{49}$ (b) $\frac{12}{14}$
 (c) $\frac{6}{7}$ (d) $\frac{3}{7}$
4. By what number should $1\frac{3}{4}$ be divided to get $2\frac{1}{2}$?
 (a) $\frac{3}{7}$ (b) $1\frac{2}{5}$
 (c) $\frac{7}{10}$ (d) $1\frac{3}{7}$
5. 1.04 as an mixed fraction is
 (a) $1\frac{1}{5}$ (b) $1\frac{2}{5}$
 (c) $1\frac{1}{25}$ (d) $1\frac{2}{25}$
6. If $24.125 = 24 + \frac{A}{10} + \frac{B}{100} + \frac{C}{1000}$, then $A + B + C =$
 (a) 3 (b) 6
 (c) 13 (d) 8
7. $0.012 \div 1.5 = ?$
 (a) 0.8 (b) 0.08
 (c) 0.008 (d) None of these
8. $-\frac{102}{119}$ in standard form is
 (a) $-\frac{6}{7}$ (b) $\frac{6}{7}$
 (c) $-\frac{6}{17}$ (d) None of these
9. What is the multiplicative identity element in the set of whole numbers?
 (a) 0 (b) 1
 (c) -1 (d) None of these
10. $(-2) \div \left(-\frac{5}{3}\right) =$
 (a) $\frac{5}{6}$ (b) $-\frac{5}{6}$
 (c) $\frac{6}{5}$ (d) $-\frac{6}{5}$
11. The number 2.35×10^2 in the usual form is written as
 (a) 2.35 (b) 23500
 (c) 2350000 (d) 235
12. Simplify and express each of the following in exponential form: $\left\{(5^2)^3 \times 5^4\right\} \div 5^7$
 (a) 5^2 (b) 5^3
 (c) 5^4 (d) 5^5
13. Which of the following is not a monomial?
 (a) $2x^2 + 1$ (b) $3x^4$
 (c) ab (d) x^2y
14. The coefficient of x^2 in $-\frac{5}{3}x^2y$ is equal to
 (a) $-\frac{5}{3}$ (b) $-\frac{5}{3}y$
 (c) $\frac{5}{3}$ (d) $\frac{5}{3}y$

Space for Rough Work

15. How much is $a^2 - 3a$ greater than $2a^2 + 4a$?

- (a) $a^2 - 7a$ (b) $a^2 + 7a$
(c) $-a^2 - 7a$ (d) $-a^2 + 7a$

16. If $\frac{x}{6} + \frac{x}{4} = \frac{x}{2} + \frac{3}{4}$, then $x =$

- (a) 9 (b) 6
(c) -9 (d) 4

17. The sum of two consecutive odd numbers is 36. The large number is

- (a) 17 (b) 15
(c) 19 (d) 21

18. A ratio equivalent to 2 : 5 is

- (a) 6 : 15 (b) 4 : 5
(c) 5 : 2 (d) 5 : 4

19. If $2x = 3y$ and $4y = 5z$ then $X : Z =$

- (a) 4 : 3 (b) 8 : 15
(c) 3 : 4 (d) 15 : 8

20. If the cost of 15 mangoes is Rs 180, then what is the cost of 25 mangoes?

- (a) 220 (b) 360
(c) 200 (d) 300

21. If 8% of a number is 6, then the number is

- (a) 96 (b) 60
(c) 96 (d) 75

22. If CP = Rs 120 and SP = Rs 80, then profit or loss is equal to

- (a) 40 loss (b) 60 loss
(c) 40 profit (d) 60 profit

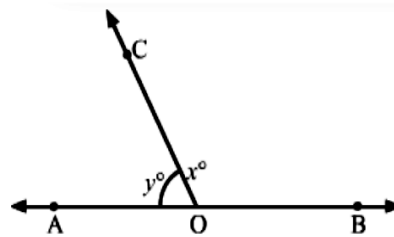
23. The C.P. of a chair is 3300. If it is sold at a loss of 10%, then SP is

- (a) Rs 3000 (b) Rs 3070
(c) Rs 2790 (d) Rs 2970

24. The simple interest for Rs 1500 at 8% per annum for 3 years is

- (a) Rs 400 (b) Rs 360
(c) Rs 450 (d) Rs 500

25. In Figure, AOB is a straight line and $4x = 5y$. The value of x is



- (a) 100 (b) 105
(c) 110 (d) 115

26. The area of a square field is 64 m^2 . A path of uniform width is laid around and outside of it. If the area of the path is 17 m^2 then the width of the path is

- (a) 1 m (b) 1.5 m
(c) 0.5 m (d) 2 m

27. An angle is double of its supplement. The measure of the angle is

- (a) 60° (b) 120°
(c) 40° (d) 80°

28. In which of the following cases, a right triangle cannot be constructed?

- (a) 12 cm, 5 cm, 13 cm
(b) 8 cm, 6 cm, 10 cm
(c) 5 cm, 9 cm, 11 cm
(d) 3 cm, 4 cm, 5 cm

29. The number of lines of symmetry of an equilateral triangle is

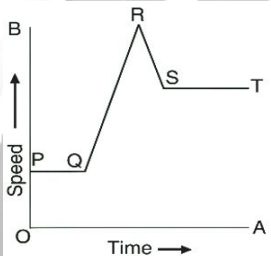
- (a) 1 (b) 2
(c) 3 (d) 0

30. A rectangle has rotational symmetry of order

- (a) 1 (b) 2
(c) 3 (d) 4

Space for Rough Work

PART - III : PHYSICS & CHEMISTRY

- Which of the following statement is correct regarding velocity and speed of a moving body?
 - velocity of a moving body is always higher than its speed
 - speed of a moving body is always higher than its velocity
 - speed of a moving body is its velocity in a given direction
 - velocity of a moving body is its speed in a given direction
- In the speed-time graph for a moving object shown here, the part which indicates uniform deceleration of the object is _____.
 

- ST
- RS

- QR
- PQ

- Which of the following statements are correct?
 - Increased wind speed results in reduced air pressure.
 - Wind current occurs due to the uneven heating of the earth by the sun.
 - Joule is measuring unit of acceleration
 - transfer of heat requires always a medium
 - (i) and (ii) only
 - (ii) and (iii) only
 - (i) and (iv) only
 - (ii), (iii) and (iv) only

- Good absorbers are ____ radiators.
 - Good
 - Poor
 - Both A and B
 - None of these
- A small bulb is placed at the focal point of a converging lens. When the bulb is switched on, the lens Produces _____.
 - a convergent beam of light
 - a divergent beam of light
 - a parallel beam of light
 - a patch of coloured light
- A ray of light passes from a medium X to another medium Y. No refraction of light occurs if the ray of light hits the boundary of medium Y at an angle of _____.
 - 0°
 - 45°
 - 90°
 - 120°
- Electric bell works in the principle of _____.
 - Chemical effect of current
 - Magnetic effect of current
 - Heating effect of current
 - All of the above
- To make a battery of 9 Volts. How many 1.5 V cells are needed?
 - 6
 - 5
 - 4
 - 3
- Which of the following factors will contribute to the formation of cyclone?
 - humidity
 - Wind direction
 - Wind speed
 - All of the above
- The melting point of ice in Kelvin Scale is _____.
 - 0K
 - 273K
 - 273K
 - 373K.

Space for Rough Work

11. Silkworms secrete fibre made of
(a) fat (b) cellulose
(c) protein (d) nylon
12. Pattanwadi is an Indian breed of sheep found in
(a) Gujarat (b) Rajasthan
(c) Harayana (d) Punjab
13. Sorter's disease is caused by -
(a) Bacteria (b) Fungus
(c) Virus (d) Protozoa
14. Which of the following statements is correct?
(a) Indicator is a substance that shows different colors in acidic and basic solution.
(b) Turmeric stain on a white shirt turns to red when it is washed with soap.
(c) Lime water is a solution of calcium hydroxide.
(d) All the above are correct.
15. Neutralisation reaction is a
(a) physical and reversible change.
(b) physical change that cannot be reversed.
(c) chemical and reversible change.
(d) chemical change that cannot be reversed
16. Which of the following is an acid-base indicator?
(a) Vinegar (b) Lime water
(c) Turmeric (d) Baking soda
17. 'Litmus', a natural dye is an extract of which of the following?
(a) China rose (Gudhal) (b) Beetroot
(c) Lichen (d) Blue berries (Jamun)
18. Galvanisation is a process used to prevent the rusting of which of the following?
(a) Iron (b) Zinc
(c) Aluminium (d) Copper
19. Which of the following statement is incorrect for a chemical reaction?
(a) Heat may be given out but never absorbed.
(b) Sound may be produced.
(c) A colour change may take place.
(d) A gas may be evolved
20. Which of the following is a physical change?
(a) Rusting of iron
(b) Combustion of magnesium ribbon
(c) Burning of candle
(d) Melting of wax

Space for Rough Work

PART - IV : BIOLOGY

1. The plant which traps and feeds on insects is:
(a) Cuscuta (b) China rose
(c) Pitcher plant (d) Rose
2. The ultimate source of energy for all living organisms is:
(a) Plants (b) Sun
(c) Oxygen (d) None of these
3. Which of the following is not a part of the digestive system?
(a) Mouth cavity (b) Stomach
(c) Food pipe (d) Windpipe
4. Bile plays an important role in the digestion of
(a) Protein (b) Starch
(c) Fats (d) None of these
5. Humans can digest cellulose
(a) Yes (b) No
(c) Can't say (d) None of these
6. Wool and silk fibers are obtained
(a) Plants
(b) Animals
(c) Plants and animals
(d) All of these
7. During the process of exhalation, the ribs move
(a) Down and inwards
(b) Up and inwards
(c) Down and outwards
(d) up and outward
8. What is the function of the WBCs
(a) Transport of oxygen
(b) Fight against germs
(c) Involved in blood clotting
(d) All of these
9. Blood platelets help in
(a) Formation of urine
(b) Excretion of urine
(c) Sweating
(d) Blood clotting
10. In yeast reproduction occurs by
(a) Budding
(b) Fission
(c) Fragmentation
(d) Spore formation

Space for Rough Work