



CLASS - 7



**SCHOLARSHIP FOR HIGH ACHIEVERS
AND NEEDY STUDENTS**

SAMPLE QUESTION PAPER

TIME : 1 HOUR

SCIENCE APTITUDE TEST

MAX MARKS : 300

Important Instructions

1. This Question paper contains 4 Parts
Part - I : Mental Ability - 15 Questions | Part - II : Mathematics - 30 Questions | Part - III : Physics & Chemistry - 20 Questions | Part - IV : Biology - 10 Questions
2. Marking Scheme: For each correct answer 4 marks will be awarded and for each wrong answer -1 mark will be deducted. In case of no response zero mark will be awarded
3. There is only one correct answer for each Question.
4. Darken the appropriate circle completely for the correct answer.
5. Use blue/black ballpoint pen only.
6. Fill in all the personal details given in the OMR sheet in the space provided.
7. Rough work is to be done in the space provided for this purpose in the Test Booklet only



IIT Ashram
IIT-JEE | NEET | OLYMPIADS | FOUNDATION (6 to10)

Head Office: UG - 1 & 2, Concorde Complex, Above PNB. R.C. Dutt Road., Alkapuri Vadodara.
Ph. 903 3063 029 | 9081 062 221

MANJALPUR - IIT ASHRAM : SF - 1 TO 12, Kabir Plaza, Beside Kabir Complex, Above IDBI Bank, Infront of Army Camp
Manjalpur, Nr. Gupta Hospital, Bhavan's Makarpura Road, Manjalpur . **M : 9033063024 / 9033063027**

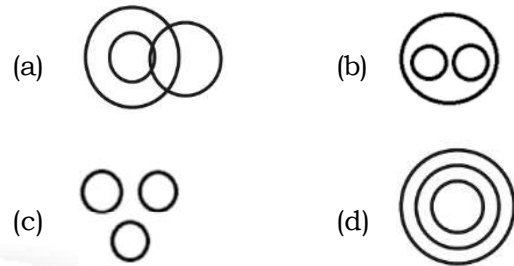
ANAND : IIT ASHRAM : 2nd Floor, HR Stone Building, Beside Croma Showroom, A.V. Road, Nr. Town Hall, Anand.
M: 9227777098, 8460009041.

Bhayli : IIT ASHRAM : Akshar Pavilion, 3 rd Floor, Tower A, Nilamber Circle, Main rd, Bhayli, Vadodara, Gujarat .
M : 6358891896, 9081062221

PART - I : MENTAL ABILITY

- If in a certain code, APPLE is written as 1-16-16-12-5, how is BALL written?
 (a) 2-1-12-12 (b) 1-2-11-11
 (c) 2-1-11-12 (d) 2-1-12-11
- A boy starts facing North. He turns right, walks 2 km, turns left, walks 3 km, turns left, walks 2 km. Which direction is he facing now?
 (a) East (b) west
 (c) North (d) South
- A boy is facing North. He turns 90° clockwise and then 180° anticlockwise. Which direction is he facing now?
 (a) East (b) west
 (c) North (d) South
- A clock shows 3:15. What will be its image in a mirror kept on the right side of the clock?
 (a) 8:45 (b) 9:45
 (c) 8:15 (d) 9:15
- Find the missing term: AZ, BY, CX, DW, ?
 (a) EV (b) EU
 (c) FV (d) FU
- Complete the series: 2, 6, 12, 20, ?
 (a) 24 (b) 28
 (c) 30 (d) 32

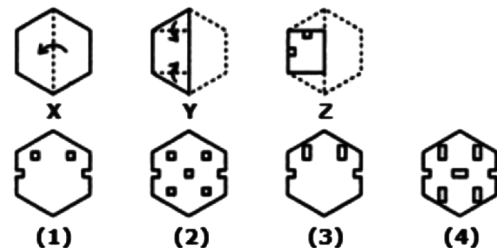
7. Which of the following diagrams indicates the best relation between Women, Mothers and Engineers?



8. Choose the alternative which is closely resembles the water-image of the given combination.

A1M3b**(1) A1M3P****(2) A1M3P****(3) A1M3P****(4) A1M3P**

9. Choose a figure which would most closely resemble the unfolded form of Figure (Z).



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

Space for Rough Work

10. Identify the figure that completes the pattern.



(X)



(1)



(2)



(3)



(4)

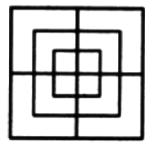
(a) 1

(b) 2

(c) 3

(d) 4

11. Count the number of squares in the given figure.



(a) 8

(b) 12

(c) 15

(d) 18

12. If A is the brother of B; B is the sister of C; and C is the father of D, how D is related to A?

(a) Brother

(b) Sister

(c) Nephew / Niece

(d) Grand father

13. CMM, EOO, GQQ, _____, KUU

(a) GRR

(b) GSS

(c) ISS

(d) ITT

14. If South-East becomes North, NorthEast becomes West and so on. What will West become?

(a) North-East

(b) North-West

(c) South-East

(d) South-West

15. Here are some words translated from an artificial language.

I. gemo linea means fair warning

II. geri mitu means report card

III. gila geri means weather report

Which word could mean "fair weather"?

(a) gemo gila

(b) geri geme

(c) gemo mitu

(d) geri mita.

Space for Rough Work

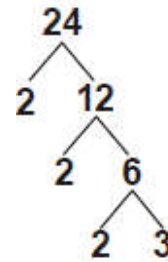
PART - II : MATHEMATICS

1. On the following number line value 'Zero' is shown by the point



- (a) X (b) V
(c) Z (d) W
2. Next three consecutive numbers in the pattern 11, 8, 5, 2, --, --, -- are
(a) 0, -3, -6 (b) -1, -5, -8
(c) -2, -5, -8 (d) -1, -4, -7
3. $(-11) \times 7$ is not equal to
(a) $11 \times (-7)$ (b) $-(11 \times 7)$
(c) $(-11) \times (-7)$ (d) $7 \times (-11)$
4. The sum of two integers is also an integer, this property of integers is called
(a) Closure (b) Commutative
(c) Associative (d) None of these
5. Opposite of rise in temperature by 5°C :
(a) $+5^{\circ}\text{C}$ (b) -15°C
(c) fall in temperature by 5°C (d) $+10^{\circ}\text{C}$

6. The factor tree for the number 24 is shown here. 24 According to the factor tree, which of the following statements is true?



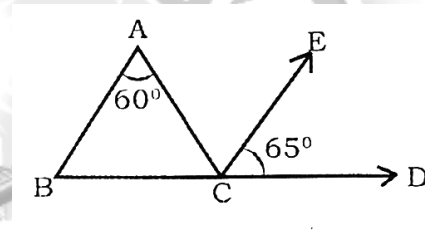
- (a) The number 24 is prime.
(b) The only prime factor of the number 24 is 12.
(c) The numbers 24, 12 and 6 are composite.
(d) The numbers 2, 3, 6 and 12 are prime factors of 24.
7. How many numbers are there from 100 to 200?
(a) 100 (b) 101
(c) 99 (d) None of these
8. Which of the following statements is INCORRECT with respect to integers ?
(a) Integers are closed under both addition and subtraction.
(b) Commutative property holds in addition but not in subtraction.
(c) Associative property holds both in addition and subtraction.
(d) 0 is the additive identity of integers.

Space for Rough Work

9. The improper fraction among the following is
- (a) $\frac{5}{3}$ (b) $\frac{3}{4}$
- (c) $\frac{5}{12}$ (d) None
10. $\frac{24 \div 12}{60 \div 12}$ is equal to
- (a) $\frac{3}{2}$ (b) $\frac{2}{5}$
- (c) $\frac{4}{5}$ (d) $\frac{1}{5}$
11. $\frac{10}{12}, \frac{15}{18}, \frac{20}{24}$ are equivalent fractions of
- (a) $\frac{4}{6}$ (b) $\frac{3}{6}$
- (c) $\frac{2}{6}$ (d) $\frac{5}{6}$
12. There are 40 match sticks in a matchbox. Sania uses 3 match sticks everyday. The fraction of match sticks which are unused in a week is _____
- (a) $\frac{21}{40}$ (b) $\frac{3}{40}$
- (c) $\frac{19}{40}$ (d) $\frac{7}{40}$
13. Smriti, Saroj and Shamim secured 15.05, 15.25, 15.5 marks in a Mathematics test. The one who did the best in the test is
- (a) Smriti (b) Saroj
- (c) Shamim (d) Smriti & Saroj
14. The next number after 4.123, 5.124, 6.125 is
- (a) 4.124 (b) 6.124
- (c) 7.127 (d) 7.126
15. The difference of 900.853 and 473.2 is
- (a) 426.853 (b) 425.753
- (c) 427.653 (d) 426.653
16. 7204 m is equal to _____
- (a) 7.204 km (b) 72.04 km
- (c) 0.7204 km (d) none of these
17. The value of $2.2 \times 0.2 \times 0.001$ is equal to
- (a) 4.2 (b) 0.00044
- (c) 4.4 (d) none of these
18. $[(-3)^2]^3$ is equal to
- (a) $(-3)^8$ (b) $(-3)^6$
- (c) $(-3)^5$ (d) $(-3)^{23}$
19. Compare the following numbers;
 2.31×10^{-3} _____ 2.31×10^{-4} .
- (a) < (b) >
- (c) = (d) None of these
20. $\left(\frac{2}{3}\right)^3 \times \left(\frac{5}{7}\right)^3$ is equal to
- (a) $\left(\frac{2}{3} \times \frac{5}{7}\right)^9$ (b) $\left(\frac{2}{3} \times \frac{5}{7}\right)^6$
- (c) $\left(\frac{2}{3} \times \frac{5}{7}\right)^3$ (d) $\left(\frac{2}{3} \times \frac{5}{7}\right)^0$

Space for Rough Work

21. The length of a side of square is given as $2x + 3$. Which expression represents the perimeter of the square?
- (a) $2x + 16$ (b) $6x + 9$
(c) $8x + 3$ (d) $8x + 12$
22. Identify the binomial out of the following:
- (a) $3xy^2 + 5y - x^2y$
(b) $x^2y - 5y - x^2y$
(c) $xy + yz + zx$
(d) $3xy^2 + 5y - xy^2$
23. If $m = 2$, then value of $9 - 5m$ is
- (a) 1 (b) 0
(c) -1 (d) 2
24. The equation which cannot be solved in integers is
- (a) $5y - 3 = -18$ (b) $3x - 9 = 0$
(c) $3z + 8 = 3 + z$ (d) $9y + 8 = 4y - 7$
25. Two sums of money are in the ratio 2 : 5. If the second sum is Rs.95, then first sum is:
- (a) Rs.28 (b) Rs.21
(c) Rs.42 (d) Rs.38
26. Solve for x : $\frac{6x-2}{9} + \frac{3x+5}{18} = \frac{1}{3}$
- (a) $\frac{1}{3}$ (b) $\frac{2}{3}$
(c) $\frac{3}{5}$ (d) $\frac{8}{3}$
27. Line segment has ____ end points.
- (a) 1 (b) 3
(c) 2 (d) 4
28. Instrument used to measure or construct angles is :
- (a) compass (b) scale
(c) protractor (d) set square
29. At 5:20 the angle formed between the two hands of a clock is :
- (a) obtuse (b) right
(c) acute (d) none
30. In the adjoining figure, it is given that $\angle A = 60^\circ$, $CE \parallel BA$ and $\angle ECD = 65^\circ$ then $\angle ACB =$ ____



- (a) 60° (b) 55°
(c) 70° (d) 90°

Space for Rough Work

PART - III : PHYSICS & CHEMISTRY

1. Which of the following is NOT a source of heat energy?
(a) Sun (b) Candle
(c) Electric heater (d) Mirror
2. Which of the following devices is used to measure electric current?
(a) Ammeter (b) Voltmeter
(c) Thermometer (d) Barometer
3. Which of the following statements about sound is correct?
(a) Sound can travel in vacuum
(b) Sound travels faster in air than in water
(c) Sound needs a medium to travel
(d) Sound is a form of light energy
4. In which type of motion does an object move back and forth about a fixed point?
(a) Circular motion
(b) Rectilinear motion
(c) Oscillatory motion
(d) Rotational motion
5. Why does a black car get hotter than a white car in sunlight?
(a) Black reflects heat, white absorbs it
(b) Black absorbs more heat, white reflects more
(c) Both absorb heat equally
(d) White absorbs more heat, black reflects it
6. A sound wave has a frequency of 256 Hz. What does this mean?
(a) 256 waves pass in one minute
(b) 256 waves pass in one second
(c) The speed of sound is 256 m/s
(d) The wavelength is 256 m
7. When light passes from air into glass, it bends. Which phenomenon of light does this show?
(a) Reflection (b) Refraction
(c) Dispersion (d) Scattering
8. A bar magnet is cut into two equal parts. What happens?
(a) Each part becomes a separate magnet with two poles
(b) Only one part becomes a magnet
(c) Poles disappear
(d) Magnetism vanishes completely
9. Why do astronauts float inside a spacecraft orbiting Earth?
(a) No gravity acts in space
(b) They are too light
(c) Both astronauts and spacecraft are in free fall
(d) Space pushes them upwards
10. Why is a concave mirror used by dentists to examine teeth?
(a) It makes the image smaller
(b) It gives an upright, magnified image at close distance
(c) It always produces an inverted image
(d) It scatters light

Space for Rough Work

11. A sample of gas contains oxygen, nitrogen, carbon dioxide and argon. This sample is:
(a) Compound (b) Mixture
(c) Element (d) Alloy
12. The relative number of protons and electrons in a neutral atom is:
(a) Protons > Electrons
(b) Protons < Electrons
(c) Protons = Electrons
(d) Cannot be predicted
13. The boiling point of water decreases at high altitudes because:
(a) Gravity is less
(b) Pressure is low
(c) Temperature is less
(d) Oxygen is less
14. Rusting of iron requires:
(a) Oxygen only
(b) Water only
(c) Both oxygen and water
(d) Neither oxygen nor water
15. The best method to separate oil from water is:
(a) Filtration
(b) Evaporation
(c) Using separating funnel
(d) Crystallisation
16. A student adds vinegar to baking soda. Bubbles are seen. The gas formed is:
(a) Oxygen (b) Carbon dioxide
(c) Hydrogen (d) Nitrogen
17. A student wants to separate aqueous solution of sand and salt. Best method is:
(a) Filtration and evaporation
(b) Hand-picking
(c) Sieving
(d) Centrifugation
18. Which of the following is correct symbol of Neon
(a) N (b) Ne
(c) Na (d) NE
19. Which of the following is correct example of salts?
(a) Sodium hydroxide
(b) Sulphuric acid
(c) Sodium chloride
(d) Hydrochloric acid
20. The chemical formula of baking soda is:
(a) Na_2CO_3 (b) NaHCO_3
(c) NaCl (d) NaOH

Space for Rough Work

PART - IV : BIOLOGY

1. Which part of the plant makes food?
(a) Root (b) Leaf?
(c) Stem (d) Flower
2. The green pigment in leaves that helps in photosynthesis is:
(a) Hemoglobin (b) Chlorophyll
(c) Xylem (d) Phloem
3. The respiratory organs of fish are:
(a) Lungs (b) Gills
(c) Spiracles (d) Skin
4. The process of removing waste products from the body is called:
(a) Digestion (b) Respiration
(c) Excretion (d) Circulation
5. Which of the following is a herbivore?
(a) Lion (b) Tiger
(c) Goat (d) Eagle
6. The plant that grows in deserts and stores water in its stem is:
(a) Lotus (b) Cactus
(c) Mango (d) Rose
7. Insects breathe through:
(a) Nose (b) Lungs
(c) Spiracles (d) Skin
8. The blood vessels that carry blood away from the heart are called:
(a) Veins (b) Arteries
(c) Capillaries (d) Valves
9. The finger-like projections in the small intestine that help in absorption of food are called:
(a) Villi (b) Cilia
(c) Alveoli (d) Spiracles
10. The tiny pores on stem that help in gaseous exchange are called:
(a) Stomata (b) Lenticels
(c) Spiracles (d) Pores

Space for Rough Work



IIT Ashram

IIT-JEE | NEET | OLYMPIADS | FOUNDATION (6 to 10)

Head Office: UG – 1 & 2, Concorde Complex, Above PNB. R.C. Dutt Road., Alkapuri Vadodara. Ph. 903 3063 029 | 9081 062 221

ADMISSION OPEN

IIT JEE (XI-XII)

NEET - UG (XI-XII)

FOUNDATION (VI TO X)



ALKAPURI
9033063029

BHAYLI
6358891896

MANJALPUR
9033063027

ANAND
9227777098