

IIT ASHRAM BRINGS...

SCIENCE APTITUDE TEST (2016-17)

SAMPLE PAPER

CLASS **6**



Time : 3 Hours
M.M. : 300

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

IMPORTANT INSTRUCTIONS

A. General:

1. This booklet consists of 100 questions.
2. Blank papers, clipboards, log tables, slide rules, calculators, cellular phones, and electronic gadgets in any form are not allowed to be carried inside the examination hall.
3. The answer sheet, a machine-readable Objective Response Sheet (OMR), is provided separately.
4. DO NOT TAMPER WITH / MUTILATE THE OMR OR THE BOOKLET.
5. Write Name and Address in capital letters of OMR sheet.
6. **Submit the OMR Sheet back to Invigilator after examination before leaving the examination hall.**

B. Question paper format:

7. The question paper consists of **4 Sections**.
(I) **Mental Ability (20 Questions)**
(II) **Mathematics (30 Questions)**
(III) **Physics & Chemistry (34 Questions)**
(IV) **Biology (16 Questions)**

C. Marking Scheme :

8. For each question in **Section I, II, III and IV** you will be **awarded 3 marks** if you have darkened only the bubble corresponding to the correct answer and zero mark if no bubble is darkened. In all other cases where the answer marked is not correct, **minus one (-1) mark** will be awarded.

Name of the Candidate

Class

Roll Number

I have read all the instructions and shall abide by them

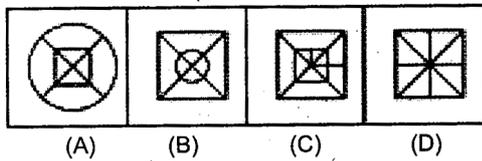
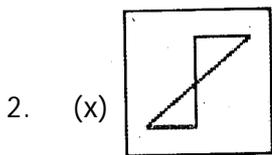
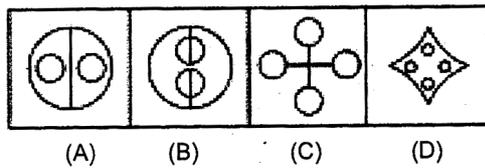
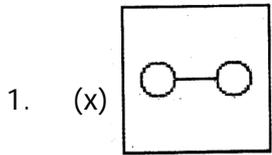
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Signature of the Candidate

I have verified all the informations filled by the candidate.

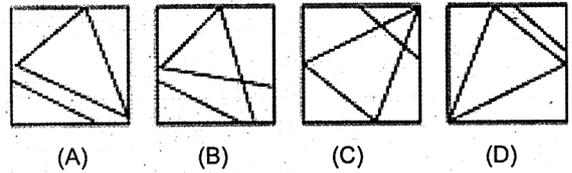
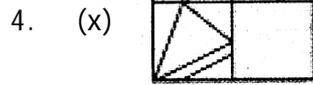
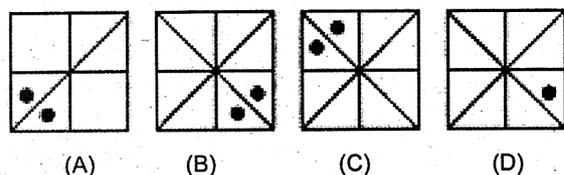
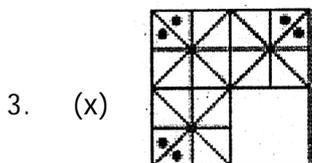
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MENTAL ABILITY

Direction : Figure (x) is embedded in one of the four answer figures marked as (A), (B), (C) and (D). Find the answer figure that contains figure (x).

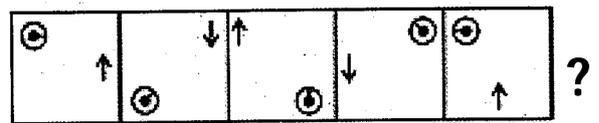


Direction: Select the figure from the four answer figures marked (A), (B), (C) and (D) which when placed in the blank space of figure(x) would complete the pattern.

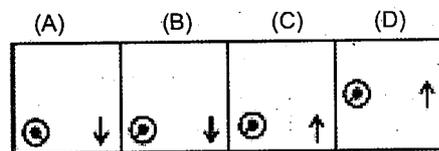


Direction : Given below are the two sets of figures the problem figures and the answers marked (A), (B), (C), and (D). Which figure from (A), (B), (C), and (D) would be the next in the series of the problem

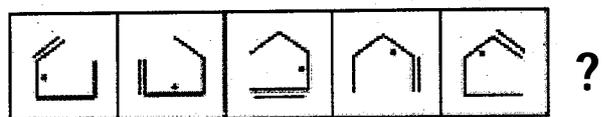
5. Problem Figure



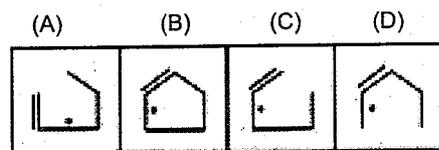
Answer figures



6. Problem Figure



Answer figures

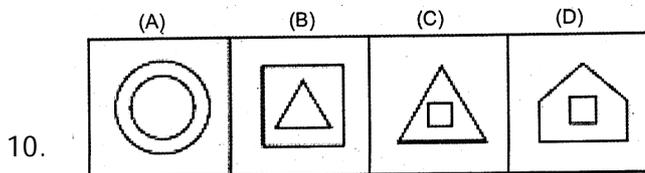
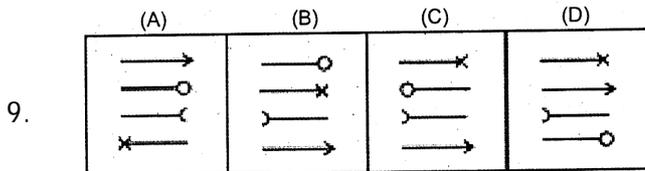


7. If '+' means 'x', 'x' means '-', '-' means '÷' and '÷' means '+', then $18 \div 4 + 3 \times 2 - 2 = ?$

- (a) 45
- (b) 48
- (c) 29
- (d) 39

8. If A is B's brother, B is C's sister and C is D's father, then D is A's
- (a) Brother (b) Sister
(c) Wife (d) None of these

Direction : Among the four given figures, three figures follow the same pattern and one figure is different from these three. Mark this figure (which is different from the other three) as your answer.



11. How many odd days are there in 352 days?
- (a) 1 (b) 2
(c) 3 (d) zero
12. If 5th January 2001 was a Friday then 25th December 2001 was a
- (a) Monday (b) Tuesday
(c) Wednesday (d) Thursday
13. The calendar for the year 2001 is the same as that of which of the following years?
- (a) 2005 (b) 2006
(c) 2007 (d) 2008
14. In a certain code language, if the word 'RECTANGLE' is coded as TGEVCPING, then how is the word 'RHOMBUS' coded in that language?
- (a) TJOQDWV (b) TJQNDWU
(c) TJQODWU (d) TJQOEWU
15. In a certain code language, if the number 1 is assigned to all the letters in odd numbered placed in the alphabet and the remaining letters are assigned the number 2, then what is the code of the 'INDIAN'?
- (a) 121212 (b) 111222
(c) 112212 (d) 122112

16. 'True' is related to 'False' as 'float' is related to ____.
- (a) Swing (b) Swim
(c) Sink (d) Dive
17. SUWY : LPTX :: PRTV : _____
- (a) INRU (b) INQU
(c) IMRU (d) IMQU
18. If 5 men can build a wall in 12 days. How many men can build it in 10 days?
- (a) 6 men (b) 7 men
(c) 8 men (d) 4 men
19. Which one is the same as Basket, Pail and Pan?
- (a) Knife (b) Spoon
(c) Fork (d) Bowl
20. Socks : Feet : _____ : Hands:
- (a) Arms (b) Shirt
(c) Gloves (d) Fingers

MATHEMATICS

1. Integers are not closed over
- (a) Addition (b) Subtraction
(c) Multiplication (d) Division
2. The two consecutive integers between which $\frac{5}{7}$ lies are
- (a) 5 and 6 (b) 0 and 1
(c) 7 and 8 (d) 6 and 8
3. If we divide $\frac{1}{3}$ by 6, we get
- (a) 2 (b) $\frac{1}{2}$
(c) $\frac{1}{18}$ (d) $\frac{1}{36}$
4. To convert 88.888 to 88888, we multiply it by
- (a) 100 (b) 1000
(c) 10 (d) 10000
5. If we divide 60.0 by 50, we get
- (a) 12 (b) 1.2
(c) 0.12 (d) 120
6. If 10 erasers cost Rs. 100.50, one eraser costs
- (a) Rs. 10 (b) Rs. 20.5
(c) Rs. 10.50 (d) Rs. 10.05

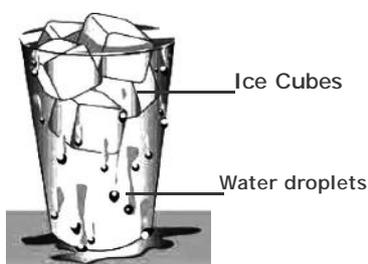
7. The smallest rational number among the following is:
- (a) $\frac{0}{1}$ (b) 1
(c) -1 (d) 2
8. $a^8 \div a^3$ will be
- (a) a^{83} (b) a^5
(c) a^{11} (d) a^0
9. $(-1)^{23}$ will be
- (a) -1 (b) 1
(c) 23 (d) 0
10. $45^0 + 19^0$ is the same as
- (a) -1 (b) 2
(c) 1 (d) 0
11. $(-4)^3$ will be
- (a) 16 (b) -16
(c) -64 (d) 64
12. Which of the following is in the scientific notation?
- (a) 0.9×10^3 (b) 0.09×10^{-3}
(c) 9.9×10^4 (d) 0.9×10^{-3}
13. If $a = 1$ and $b = (-3)$, the value of $4ab^3$ is
- (a) -36 (b) 36
(c) -108 (d) -72
14. If we add $4m^2n$ and $-3m^2n$, we get
- (a) $-7m^2n$ (b) $7m^2n$
(c) $-m^2n$ (d) m^2n
15. If $2m - 6 = 14$, then $2m - 6 + 4$ will be
- (a) 18 (b) 16
(c) 12 (d) 14
16. $m = 4$ is the root of which equation?
- (a) $10m = 5$ (b) $6m = 12$
(c) $3m = 12$ (d) $\frac{m}{2} = 6$
17. The root of the equation $2y + 1 = 7$ is
- (a) $y = 3$ (b) $y = 2$
(c) $y = 7$ (d) $y = 1$
18. The sum of 2 consecutive numbers is 63. The numbers are
- (a) 40, 41 (b) 39, 40
(c) 32, 33 (d) 31, 32
19. The ratio of 1 litre to 200 ml is
- (a) 5 : 1 (b) 10 : 1
(c) 1 : 200 (d) 1 : 20
20. The cost of a dozen bananas is Rs. 20, so 18 bananas will cost
- (a) Rs. 35 (b) Rs. 30
(c) Rs. 40 (d) Rs. 25
21. 108 apples can be packed in 18 boxes, so to pack 60 apples we need
- (a) 9 boxes (b) 15 boxes
(c) 12 boxes (d) 10 boxes
22. If 25% of x is 200, so x is
- (a) 50 (b) 100
(c) 400 (d) 800
23. By what per cent $5x$ exceeds x ?
- (a) 200% (b) 400%
(c) 100% (d) 600%
24. What per cent is 6 minutes of 2 hours?
- (a) 10% (b) 6%
(c) 5% (d) 26%
25. If Rs. 100 amounts to Rs. 120 in 2 years, what is the rate of interest?
- (a) 5% (b) 10%
(c) 2% (d) 20%
26. $x\%$ of one-third of z is
- (a) $\frac{xz}{300}$ (b) $\frac{xz}{100}$
(c) $\frac{x}{100z}$ (d) $\frac{300}{xz}$
27. The point of concurrence of the medians of a triangle is called the
- (a) centroid (b) orthocentre
(c) circumcentre (d) incentre
28. The exterior angle of a triangle is 75° . The pair of interior opposite angles can be
- (a) $100^\circ, 20^\circ$ (b) $40^\circ, 35^\circ$
(c) $40^\circ, 50^\circ$ (d) $80^\circ, 10^\circ$
29. Which triplet can form a triangle?
- (a) 2 cm, 3 cm, 8 cm
(b) 1 cm, 10 cm, 7 cm
(c) 3 cm, 4 cm, 5 cm
(d) 9 cm, 2 cm, 4 cm

30. The sides of a rectangle are 9 cm and 12 cm. So the length of the diagonal is
- (a) 21 (b) 19 cm
(c) 15 cm (d) 20 cm

PHYSICS & CHEMISTRY

- What is the Earth's complete travel around the Sun?
(a) hemisphere (b) revolution
(c) rotate (d) orbit
- The force with which earth attracts objects towards it?
(a) gravitation (b) friction
(c) pressure (d) inertia
- Choose the magnetic materials.
(a) Iron (b) Steel
(c) Plastic (d) Both 1 & 2
- Which soil is most fertile?
(a) Sandy (b) Red
(c) Alluvial (d) yellow
- What is the earth's primary source of energy?
(a) Moon (b) Mars
(c) Jupiter (d) Sun
- Longest day of the year in india?
(a) 21 june (b) 13 march
(c) 21 december (d) 24 december
- The resistor in a light bulb is called
(a) an insulator.
(b) an electric charge
(c) a filament.
(d) a power source
- Which of the following can be used to make electricity?
(a) fossil fuels (b) moving water
(c) solar energy (d) all of the above
- Magnets have how many poles?
(a) 2 (b) 4
(c) 3 (d) 1
- Device which is used to break the circuit?
(a) conductors (b) electric cells
(c) resistors (d) switches
- What type of path does light travel along?
(a) Straight path (b) Circular Path
(c) Triangular Path
(d) Zig-Zag Path
- Which resource is non-renewable?
(a) coal (b) diamonds
(c) silver (d) all of the above
- A stethoscope device measures your:
(a) nerve (b) heartbeat
(c) pulse (d) blood group
- In summers which type of clothes do you prefer to wear?
(a) Light coloured clothes
(b) Woollen clothes
(c) Dark clothes (d) Plastic clothes
- The only natural satellite of the earth is?
(a) Mars (b) Sun
(c) Moon (d) Jupiter
- What material will make a good insulator of electricity?
(a) Copper wire (b) Aluminum foil
(c) Gold wire (d) Plastic
- Oil floats on water because
(a) Oil is less dense than water
(b) Oil is more dense than water
(c) Oil and water have the same density
(d) Oil and water both are liquids
- Which of the following mixture can be separated easily by using a magnet?
(a) Sand + Water
(b) Iron dust + Sand
(c) Saw dust + Stones
(d) Stones + Sand
- What is the process of setting down of insoluble matter in water called?
(a) Distillation (b) Sedimentation
(c) Condensation (d) Filtration
- Substance P does not have a fixed volume. It occupies the total space of the container and it can be compressed. What is P likely to be?
(a) Solid (b) Liquid
(c) Gas (d) Fluid

21. Which of the following changes is possible with the application of heat?
- Water changes to ice.
 - Water vapour changes to ice
 - Ice changes to water
 - Water vapour changes to water
22. Which gas in air is represented by part A?
A 78%, B 21%, C 1%
- Nitrogen
 - Oxygen
 - Carbon dioxide
 - Water vapour
23. Which of these is/are fossil fuels?
- Coal
 - Kerosene oil
 - Natural gas
 - All of these
24. A glass with ice cubes is shown here



The formation of water droplets on the outer surface of the glass is due to

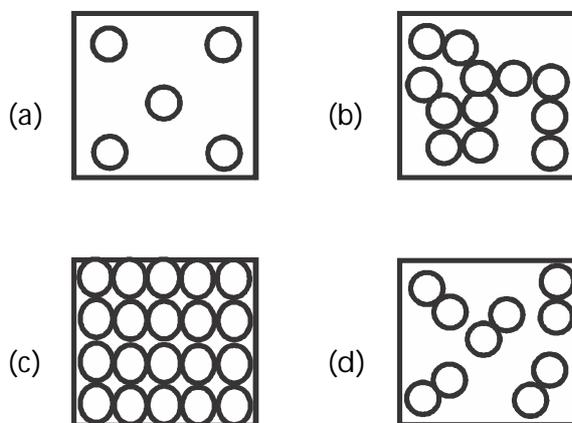
- evaporation
 - transpiration
 - condensation
 - sublimation.
25. Observe the given figure.



Which of the following helps the girls in sipping drink from the bottle using a straw?

- Bottle pressure
 - Air pressure
 - Liquid pressure
 - Chemical energy
26. Which of the following gases is used in fizzy drinks to get tingling taste?
- Oxygen
 - Nitrogen
 - Carbon dioxide
 - Hydrogen

27. Which of the following is NOT a method used to remove insoluble impurities in water?
- Sedimentation
 - Decantation
 - Filtration
 - Distillation
28. In an activity, 20 gm of salt is dissolved in 70 ml of pure water. The water is then heated on a hot plate.
- When water evaporates completely, how much salt will be left?
- 0 gm
 - 18 gm
 - 20 gm
 - 22 gm
29. Which of the following shows the arrangement of particles in an iron rod?



30. Identify the metal used to make the body of an aeroplane.
- Silver
 - Iron
 - Copper
 - Aluminium
31. Which of the following activities cause pollution of air?
- Carbon dioxide released by human beings and plants.
 - Smoke released by factories, thermal plants and automobiles
 - Growing grass plants
 - Washing animals and clothes.
32. Which of the following factors affect the rate of evaporation of water?
- Wind
 - Temperature
 - Surface area
 - All of these
33. Abi dissolved some sugar and salt in water. He got a mixture of sugar, salt and water. What is the solvent in the experiment?
- Sugar
 - Salt

- (c) Water
(d) Sugar and salt solution
34. Which of the following methods kill most of the microbes in drinking water?
- (a) Boiling
(b) Mixing salt to water
(c) Freezing
(d) Filtration

BIOLOGY

1. Which one of the following food item does not provide dietary fibre?
- (a) Whole grains
(b) Whole pulses
(c) Fruits and vegetables
(d) Milk
2. Which of the following sources of protein is different from others?
- (a) Peas
(b) Gram
(c) Soyabeans
(d) Cottage cheese (paneer)
3. Which of the following combination of features would you observe in grass?
- (a) Parallel venation and fibrous root
(b) Parallel venation and tap root
(c) Reticulate venation and fibrous root
(d) Reticulate venation and tap root
4. Which of the following is not the primary function of stem?
- (a) Conduction of water
(b) Photosynthesis
(c) Formation of branches
(d) Bears flowers and fruits
5. All organisms except green plants are called as
- (a) Autotrophs (b) Heterotrophs
(c) Herbivores (d) Carnivores
6. Curd is formed by the action of
- (a) Fungus (b) Algae
(c) Bacteria (d) Protozoa
7. Snake do not have
- (a) Tongue (b) Teeth
(c) Mouth (d) Tail

8. Which of these plants is a shrub
- (a) Coriander (b) Mint
(c) Radish (d) Bougainvillea
9. Which of these plants have fibrous roots
- (a) Teak (b) Neem
(c) Mango (d) Maize
10. During photosynthesis
- (a) Oxygen is absorbed.
(b) Carbon dioxide is released.
(c) Oxygen is released
(d) Nitrogen is oxidized.
11. Earthworms breath through
- (a) Lungs (b) Gills
(c) Skin (d) Air tube
12. An organism body is streamlined, the habitat of organism should be
- (a) Land (b) Water
(c) Desert (d) Mountain
13. The most colourful part of flower is
- (a) Stamen (b) Sepals
(c) Petals (d) Pistil
14. Xerophytes are plants which are found in
- (a) Deserts
(b) Sea
(c) Ponds
(d) Marshes
15. Which of these adaptations is not shown by a camel for living in deserts?
- (a) Has a hump on its back.
(b) Passes scanty of urine.
(c) Perspires a lot
(d) The sole of feet have sort of pads.
16. Seed develops from fertilized
- (a) Ovary (b) Ovule
(c) Anther (d) Pollen grains.

ANSWER KEY

| MENTAL ABILITY | | MATHEMATICS | | PHYSICS & CHEMISTRY | | BIOLOGY | |
|----------------|---|-------------|---|---------------------|---|---------|---|
| 1. | C | 1. | D | 21. | D | 1. | D |
| 2. | D | 2. | B | 22. | D | 2. | D |
| 3. | B | 3. | C | 23. | B | 3. | A |
| 4. | A | 4. | B | 24. | C | 4. | B |
| 5. | B | 5. | B | 25. | B | 5. | B |
| 6. | C | 6. | D | 26. | A | 6. | C |
| 7. | D | 7. | C | 27. | A | 7. | B |
| 8. | A | 8. | B | 28. | B | 8. | D |
| 9. | C | 9. | A | 29. | C | 9. | D |
| 10. | A | 10. | B | 30. | C | 10. | C |
| 11. | B | 11. | C | 11. | A | 11. | C |
| 12. | C | 12. | C | 12. | D | 12. | B |
| 13. | C | 13. | C | 13. | B | 13. | C |
| 14. | C | 14. | D | 14. | A | 14. | A |
| 15. | D | 15. | A | 15. | C | 15. | C |
| 16. | C | 16. | C | 16. | D | 16. | B |
| 17. | D | 17. | A | 17. | A | | |
| 18. | D | 18. | D | 18. | B | | |
| 19. | C | 19. | A | 19. | B | | |
| 20. | C | 20. | B | 20. | C | | |

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