

**VMC** Vidyamandir  
Classes SINCE 1986

IIT JEE | MEDICAL | FOUNDATION

# SAMPLE PAPERS



**Vidyamandir**  
Intellect National  
Incentive Test

*For Students*

Currently In **Class 6<sup>th</sup>**

1 Year Program

**FOUNDATION**



Head Office: Aggarwal Corporate Heights, 1st Floor, Netaji Subhash Place, Opp. Wazirpur Depot, Pitampura, Delhi.

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**Sample Paper – 1 Year Program**

**Vidyamandir Intellect Quest Test**

**Duration: 2.5 Hrs**

**Maximum Marks: 350**

**PAPER SCHEME:**

- The paper contains **60 Objective Type Questions** divided into three sections: **Section - I, Section – II and Section – III.**
- **Section I** contains **10 Multiple Choice Questions (1-10)** based on **Mental Aptitude**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE CHOICE is correct.**
- **Section II** contains **35 Multiple Choice Questions (11-45)** based on **Mathematics**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE CHOICE is correct.**
- **Section III** contains **15 Multiple Choice Questions (46-60)** based on **Science**. Each question has 4 choices (A), (B), (C) and (D), out of which **ONLY ONE CHOICE is correct.**

**MARKING SCHEME:**

- **Section I :** For each question, **5 marks** will be awarded for correct answer and **–1 negative marking** for incorrect answer.
- **Section II & III :** For each question, **6 marks** will be awarded for correct answer and **–1 negative marking** for incorrect answer.

**GENERAL INSTRUCTIONS:**

- For answering a question, an **ANSWER SHEET (OMR SHEET)** is provided separately. Please fill your **Name, Roll Number, Seat ID, Date of Birth** and the **PAPER CODE** properly in the space provided in the **ANSWER SHEET**. IT IS YOUR OWN RESPONSIBILITY TO FILL THE OMR SHEET CORRECTLY.
- Violating the examination room discipline will immediately lead to the cancellation of your paper and no excuses will be entertained.
- No one will be permitted to leave the examination hall before the end of the test.
- Please submit both the question paper and the answer sheet to the invigilator before leaving the examination hall.

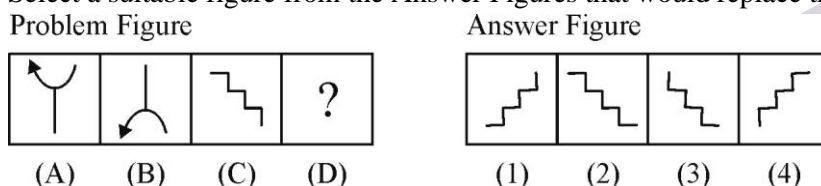
**SUGGESTIONS:**

- Before starting the paper, spend 2-3 minutes to check whether all the pages are in order and report any issue to the invigilator immediately.
- Try to attempt the Sections in their respective order.
- Do not get stuck on a particular question for more than 3-4 minutes. Move on to a new question as there are 60 questions to solve.

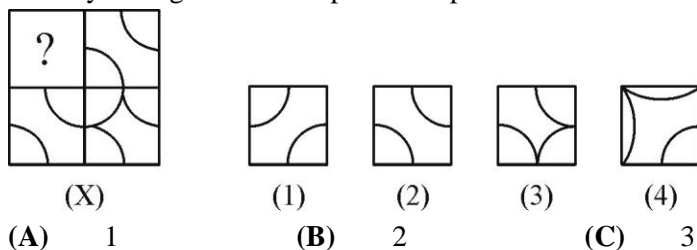
**SECTION - I [MENTAL APTITUDE]****Directions for question-1**

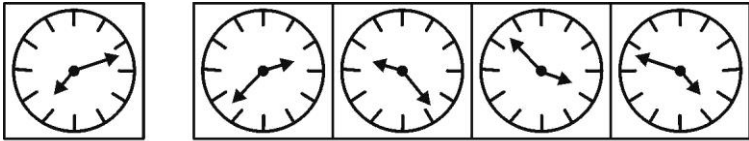
In this question consists of two sets of figures. Figures A, B, C and D constitute the Problem Set while figures 1, 2, 3, 4 constitute the Answer Set. There is a definite relationship between figures A and B. Establish a similar relationship between figures C and D by selecting a suitable figure from the Answer set that would replace the question mark (?) in fig. (D).

1. Select a suitable figure from the Answer Figures that would replace the question mark (?).

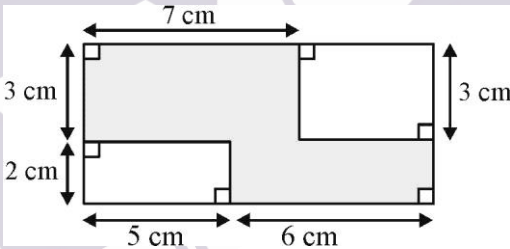


- (A) 1 (B) 2 (C) 3 (D) 4
2. If A is the brother of B; B is the sister of C; and C is the father of D, how D is related to A ?  
 (A) Brother (B) Sister (C) Nephew (D) Cannot be determined
3. Choose the alternative which is closely resembles the water-image of the given combination.  
 Wrote  
 (A) W 1 0 j 9 (B) M 1 0 1 6 (C) M 1 0 f 6 (D) M 1 0 f 9
4. If PAINT is coded as 74128 and EXCEL is coded as 93596 then how would you encoded ACCEPT?  
 (A) 455978 (B) 547978 (C) 554978 (D) 735961
5. Choose a figure which would most closely resemble the unfolded form of Figure (z).  
 (x) (y) (z) (1) (2) (3) (4)  
 (A) 1 (B) 2 (C) 3 (D) 4
6. 3, 4, 7, 11, 18, 29, ?  
 (A) 31 (B) 39 (C) 43 (D) 47
7. Identify the figure that completes the pattern.

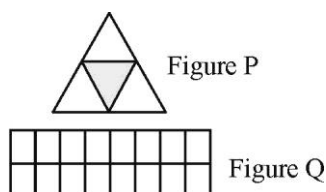


8. Arrange the words given below in a meaningful sequence.  
 1. Income                      2. Status                      3. Education                      4. Well-being  
 5. Job  
 (A) 3, 1, 5, 2, 4      (B) 1, 3, 2, 5, 4      (C) 1, 2, 5, 3, 4      (D) 3, 5, 1, 2, 4
9. Choose the correct mirror image of the given figure (X) from amongst the four alternatives.
- 
- (X)                      (1)                      (2)                      (3)                      (4)
- (A) 1                      (B) 2                      (C) 3                      (D) 4
10. If  $40 + 10 = 30$ ,  $18 + 8 = 10$ , then  $60 + 60 = ?$   
 (A) 120                      (B) 3600                      (C) 0                      (D) 90

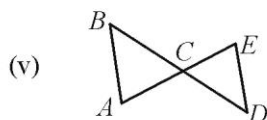
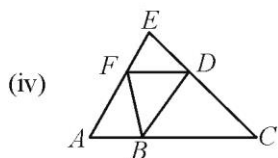
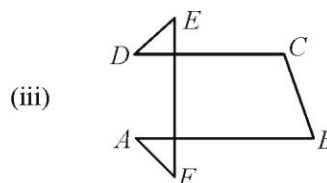
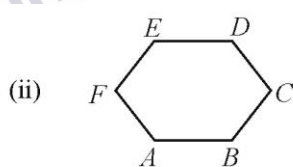
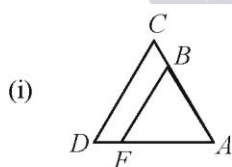
## SECTION - II [MATHEMATICS]

11. Which pair of operations will make the equation below true when inserted into the blank spaces in the order shown?  
 $2\frac{3}{10} \text{ — } 1.5 \text{ — } 2 = 1.8$   
 (A) – and +                      (B)  $\times$  and +                      (C) + and –                      (D)  $\times$  and –
12. For the figure shown below, find the area, in  $\text{cm}^2$ , of the shaded portion.
- 
- (A) 33                      (B) 44                      (C) 48                      (D) None of these
13. A polygon has prime number of sides. Its number of sides is equal to the sum of the two least consecutive primes. The number of diagonals of the polygon is:  
 (A) 4                      (B) 5                      (C) 7                      (D) 10
14. The difference between the largest 8 digit number and the smallest 6 digit number is:  
 (A) 100099999                      (B) 99899999                      (C) 99989999                      (D) 99998999
15. The statement “When an integer is added to itself, the sum is greater than the integer” is:  
 (A) Always true                      (B) Never true  
 (C) True only when the integer is positive                      (D) True for non-negative integers
16. The difference between place values of digit 5 in 456.385 is:  
 (A) 49995                      (B) 499.95                      (C) 49.995                      (D) 49.999
17. Evaluate:  $-1 + 55 - (-29) + (-1) - (-82) + (-3)$   
 (A) 161                      (B) -161                      (C) 158                      (D) -158

18. A fraction is equivalent to  $\frac{5}{8}$ . Its denominator and numerator add up to 91. What is the difference between the denominator and numerator of this fraction?  
 (A) 21 (B) 33 (C) 13 (D) 19
19. What is the value of ' $8937 \times 648 + 8937 \times 122 + 8937 \times 230$ '?  
 (A) 8937000 (B) 8936000 (C) 893800 (D) 8935000
20. Neelam's annual income is Rs. 288000. Her annual savings amount to Rs. 36000. The ratio of her savings to her expenditure is:  
 (A) 1 : 8 (B) 1 : 7 (C) 1 : 6 (D) 1 : 5
21. How many parts should be shaded in the Figure Q to make it the same fraction as the unshaded part in the Figure P?



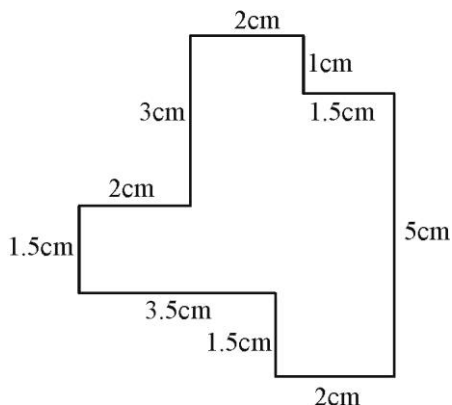
- (A) 3 (B) 4 (C) 8 (D) 12
22. Out of the ratios 7 : 15, 15 : 23, 17 : 25 and 21 : 29 the smallest one is:  
 (A) 17 : 25 (B) 7 : 15 (C) 15 : 23 (D) 21 : 29
23. The areas of squares P and Q are in the ratio 4 : 9. If the area of P is 144 sq cm, find the perimeter of Q.  
 (A) 17 cm (B) 72 cm (C) 27 cm (D) 324 cm
24. The five digit number " $24x8y$ " is divisible by 4, 5 and 9. What is the sum of the digits  $x$  and  $y$ ?  
 (A) 10 (B) 5 (C) 9 (D) 4
25. Which of the following figures are NOT polygons?



- (A) (i), (ii) and (v) (B) (i), (ii) and (iii)  
 (C) (i), (iii), (iv) and (v) (D) (i), (ii), (iii) and (iv)

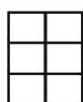


26. By splitting the given figure into rectangles, find the area.



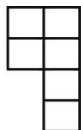
- (A)  $40.75 \text{ cm}^2$  (B)  $20.25 \text{ cm}^2$  (C)  $15.25 \text{ cm}^2$  (D)  $23.75 \text{ cm}^2$

27. Following figures are formed by joining six unit squares. Which figure has the smallest perimeter in Figure?



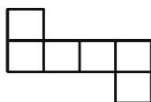
(i)

(A) (ii)



(ii)

(B)



(iii)

(C)

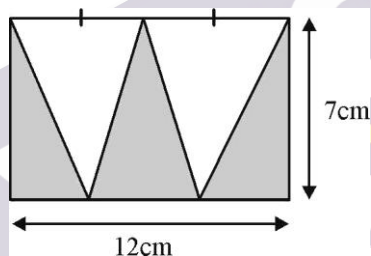


(iv)

(D)

(i)

28. The figure given shows rectangle. Find the area of the shaded region within the rectangle.

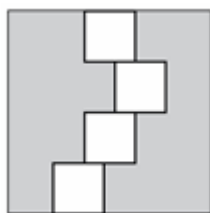


- (A)  $28 \text{ cm}^2$  (B)  $38 \text{ cm}^2$  (C)  $42 \text{ cm}^2$  (D)  $84 \text{ cm}^2$

29. Pranay spent  $\frac{1}{8}$ th of his money on food. He spent 3 times as much as what he spent on food on a pair of shoes and  $\frac{1}{3}$ rd of it on transport. What fraction of his money was left?

- (A)  $\frac{7}{8}$  (B)  $\frac{13}{24}$  (C)  $\frac{1}{2}$  (D)  $\frac{1}{6}$

30. The figure below shows 4 identical squares which lie within a big square. If the area of the big square is  $784 \text{ cm}^2$ , find the shaded area of the given figure.

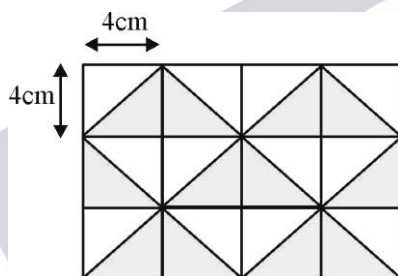


- (A)  $637 \text{ cm}^2$  (B)  $588 \text{ cm}^2$  (C)  $688 \text{ cm}^2$  (D)  $528 \text{ cm}^2$

31. Two regular hexagons of perimeter 30 cm each are joined as shown in the figure. The perimeter of the new figure is:



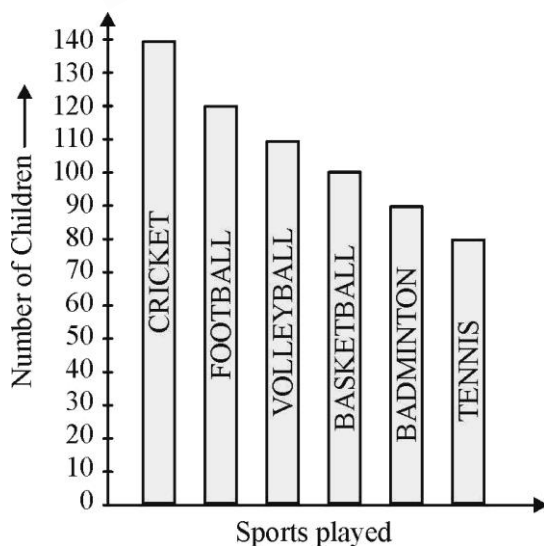
- (A) 65 cm      (B) 60 cm      (C) 55 cm      (D) 50 cm
32. The ratio of the number of big dogs to the number of small dogs at a pet show is 3 : 17. There are 80 dogs, in total, at this pet show. How many big dogs are there?
- (A) 12      (B) 20      (C) 24      (D) 6
33. Three squares P, Q and R are such that the perimeter of P is  $\frac{2}{3}$  the perimeter of Q, and the perimeter of Q is  $\frac{2}{3}$  the perimeter of R. If the area of P is 16 sq. units, what is the area of R?
- (A) 9 sq. units      (B) 81 sq. units      (C) 64 sq. units      (D) 36 sq. units
34. The marks (out of 10) obtained by 28 students in a Mathematics test are listed as below:  
8, 1, 2, 6, 5, 5, 5, 0, 1, 9, 7, 8, 0, 5, 8, 3, 0, 8, 10, 10, 3, 4, 8, 7, 8, 9, 2, 0  
The number of students who obtained marks more than or equal to 5 is:
- (A) 13      (B) 15      (C) 16      (D) 17
35. The given rectangle is made up of 12 squares. Find the area of the shaded region.



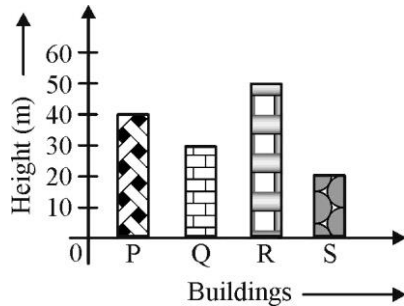
- (A)  $60\text{cm}^2$       (B)  $48\text{cm}^2$       (C)  $96\text{cm}^2$       (D)  $24\text{cm}^2$

#### Directions for Questions 36-37

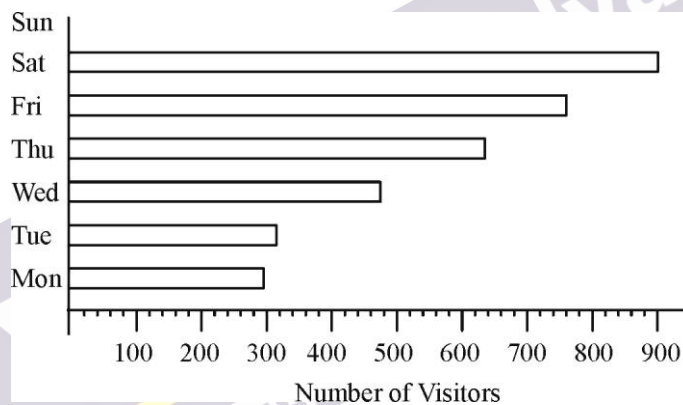
Study the given graph carefully and answer the following questions.



36. What fraction of the total number of children plays football?  
 (A)  $\frac{3}{16}$  (B)  $\frac{13}{64}$  (C)  $\frac{11}{64}$  (D)  $\frac{5}{32}$
37. The difference between the number of children who play tennis and cricket altogether and basketball and volley ball altogether is:  
 (A) 20 (B) 40 (C) 10 (D) 50
38. Which building is 20 m taller than the shortest?

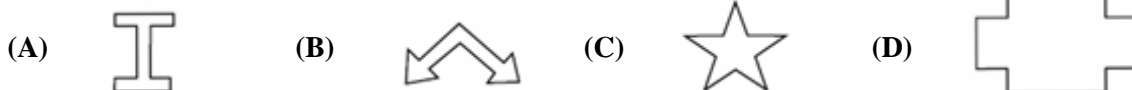


- (A) P (B) Q (C) R (D) S
39. The graph given shows the number of visitors to a zoo in a particular week.



On which day was the number of visitors thrice that on Monday?

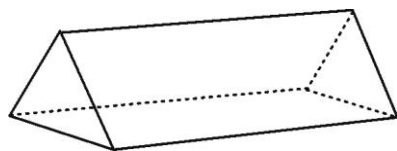
- (A) Sunday (B) Saturday (C) Friday (D) Thursday
40. Which of the following figures has more than three lines of symmetry?



41. Ratan had Rs. 50. After buying 5 identical pens, he has Rs. y left. The cost of 1 pen in terms of y is:  
 (A)  $Rs\left(\frac{50-y}{5}\right)$  (B)  $Rs\left(50-\frac{y}{5}\right)$  (C)  $Rs(50-5y)$  (D)  $Rs\left(\frac{50y}{5}\right)$
42. The HCF of 252, 324 and 594 is:  
 (A) 36 (B) 18 (C) 12 (D) 6
43. The number 0.05 is how many percent of 20?  
 (A) 25 (B) 0.025 (C) 0.25 (D) 2.5
44. If 70% of the students in a school are boys and the number of girls be 504 the number of boys is:  
 (A) 1176 (B) 1008 (C) 1208 (D) 3024



45. The given figure is called as \_\_\_\_\_ which contains \_\_\_\_\_ faces; \_\_\_\_\_ corners and \_\_\_\_\_ edges.

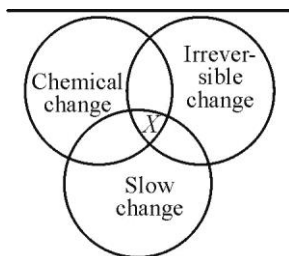


- (A) Triangular prism, 5, 6, 9      (B) Triangular prism, 6, 9, 5  
(C) Rectangular prism, 5, 9, 6      (D) Rectangular prism, 9, 6, 5

### SECTION - III [SCIENCE]

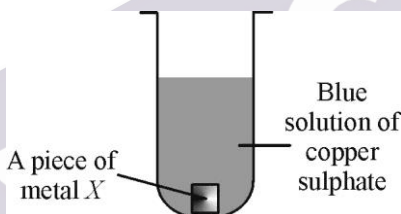
46. Galvanisation is a process used to prevent the rusting of which of the following?  
(A) Iron      (B) Zinc      (C) Aluminium      (D) Copper
47. Paheli's mother made a concentrated sugar syrup by dissolving sugar in hot water. On cooling, crystals of sugar got separated. This indicates a:  
(A) Physical change that can be reversed      (B) Chemical change that can be reversed  
(C) Physical change that cannot be reversed      (D) Chemical change that cannot be reversed
48. 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
49. The tropical climate is the one which is:  
(A) Neither very hot nor very cold      (B) Very hot and humid  
(C) Very hot and dry      (D) Very cold and dry
50. The animal having sticky pads on its feet which help it to climb easily on trees is:  
(A) Toucan      (B) Red-eyed frog  
(C) Siberian crane      (D) Reindeer
51. Which of the following is used by E.N.T. doctors?  
(A) Convex mirror      (B) Convex lens  
(C) Plane mirror      (D) Concave mirror
52. If the angle of incidence is  $50^\circ$ , then calculate the angle between the incident ray and the reflected ray.  
(A)  $50^\circ$       (B)  $100^\circ$       (C)  $130^\circ$       (D)  $80^\circ$
53. In our houses, which of the following is used for looking at ourselves?  
(A) Convex mirror      (B) Concave mirror  
(C) Convex lens      (D) Plane mirror
54. Reason for the greater similarities among the offspring's produced by asexual reproduction, is:  
(i) Asexual reproduction involves only one parent  
(ii) Asexual reproduction involves two parents  
(iii) Asexual reproduction involves gametes  
(iv) Asexual reproduction does not involve gametes  
(A) (i) and (ii)      (B) (i) and (iii)      (C) (ii) and (iv)      (D) (i) and (iv)

55. Propagation of what type is better for the plant?  
(A) By stem (B) By tubers (C) By seeds (D) By rhizome
56. The number of chromosomes in both parents and offsprings of a particular species remains constant because:  
(A) Chromosomes get doubled after zygote formation  
(B) Chromosomes get doubled after gamete formation  
(C) Chromosomes get halved during gamete formation  
(D) Chromosomes get halved after gamete formation
57. Study the given Venn diagram carefully.



The centre point X represents

- (A) Burning of paper (B) Dissolving salt in water  
(C) Boiling of an egg (D) Bursting of a balloon.
58. A metallic piece (X) is dropped into copper sulphate solution. After some time, the blue colour of the solution changes to green. The change which has occurred is:



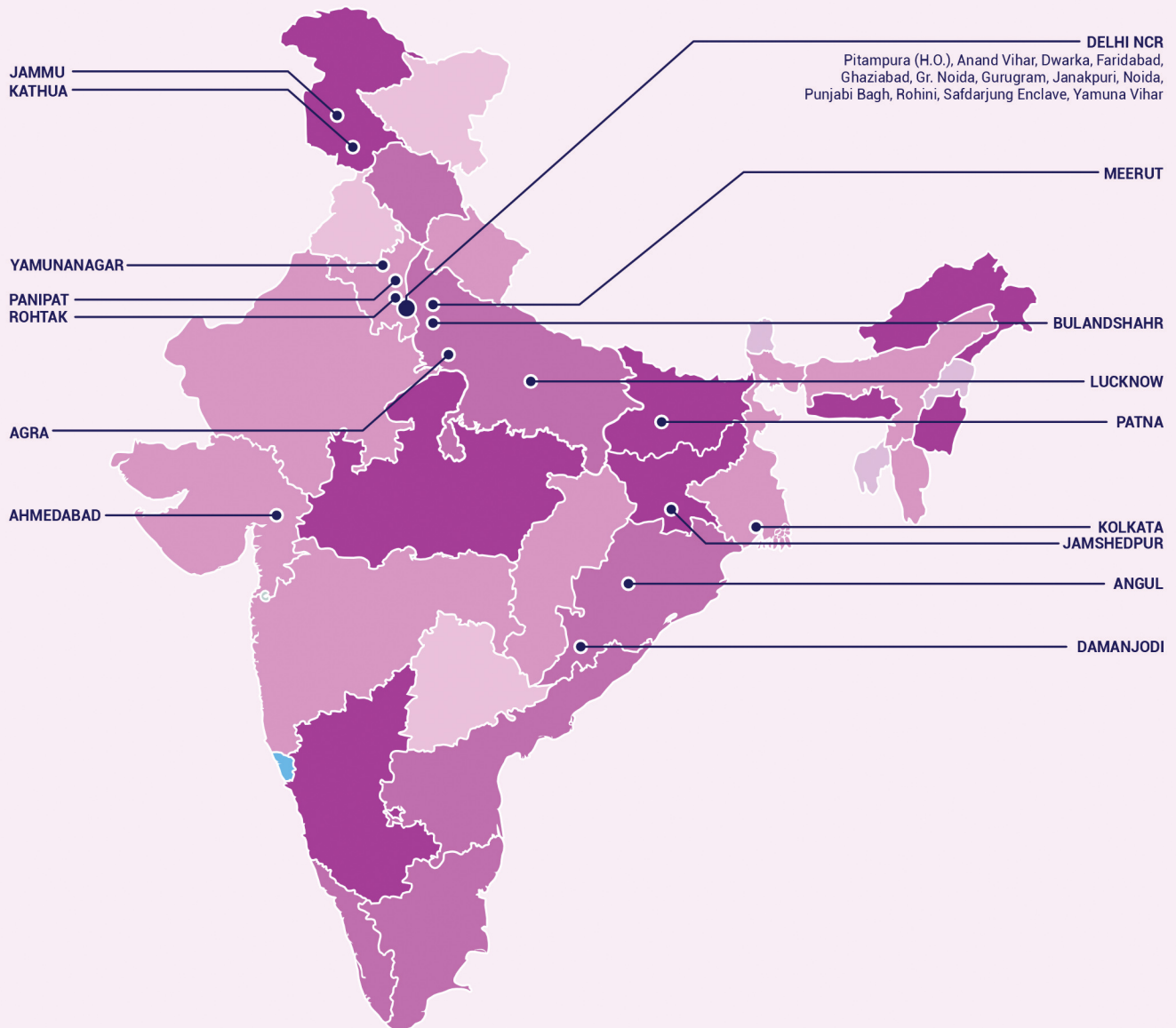
- (A) Physical and reversible change (B) Physical and irreversible change  
(C) Chemical and reversible change (D) Chemical and irreversible change.
59. Which of these is due to condensation?  
(A) Drying of wet clothes  
(B) Water drops appear on cool water bottle  
(C) Steam rises from wet clothes when they are ironed  
(D) Black board dries up after wiping it
60. Which of the following gases cause the harmful greenhouse effect?  
(A) Hydrogen (B) Oxygen  
(C) Carbon dioxide (D) Nitrogen

## 1 Year Foundation Sample Paper | Answer Key

Code-A Mapping	Code-A Answer Key	Code-A Difficulty	Code-A Subject	Code-A Topic (Chapter Name)	Code-A Skill (Base)	Code-A +Ve Marks	Code-A -Ve Marks
1	A	Difficult	Mental Aptitude	Analogy	Logical	5	1
2	D	Difficult	Mental Aptitude	Blood Relation	Application	5	1
3	C	Difficult	Mental Aptitude	Water Images	Memory based	5	1
4	A	Easy	Mental Aptitude	Coding decoding	Memory based	5	1
5	C	Difficult	Mental Aptitude	Paper Cutting and Folding	Memory based	5	1
6	D	Difficult	Mental Aptitude	Verbal Series	Calculation	5	1
7	C	Difficult	Mental Aptitude	Figure Completion	Memory based	5	1
8	D	Medium	Mental Aptitude	Logical Sequence of Word	Application	5	1
9	D	Medium	Mental Aptitude	Mirror Image	Memory based	5	1
10	C	Medium	Mental Aptitude	Verbal Series	Calculation	5	1
11	C	Medium	Mathematics	Fraction and decimal	Calculation	6	1
12	A	Medium	Mathematics	Mensuration	Conceptual	6	1
13	B	Difficult	Mathematics	3d shapes	Conceptual	6	1
14	B	Medium	Mathematics	Integers	Calculation	6	1
15	C	Easy	Mathematics	Integers	Logical	6	1
16	C	Easy	Mathematics	Fraction and decimal	Calculation	6	1
17	A	Medium	Mathematics	Integers	Calculation	6	1
18	A	Difficult	Mathematics	Fraction and decimal	Conceptual	6	1
19	A	Medium	Mathematics	Integers	Application	6	1
20	B	Medium	Mathematics	Ratio and proportion	Application	6	1
21	D	Easy	Mathematics	Ratio and proportion	Application	6	1
22	B	Medium	Mathematics	Ratio and proportion	Calculation	6	1
23	B	Medium	Mathematics	Mensuration	Conceptual	6	1
24	D	Difficult	Mathematics	Integers	Application	6	1
25	C	Easy	Mathematics	3d shapes	Memory	6	1
26	B	Difficult	Mathematics	Mensuration	Conceptual	6	1
27	D	Difficult	Mathematics	Mensuration	Conceptual	6	1
28	C	Medium	Mathematics	Mensuration	Application	6	1
29	D	Difficult	Mathematics	Ratio and proportion	Application	6	1
30	B	Difficult	Mathematics	Mensuration	Logical	6	1
31	D	Medium	Mathematics	Mensuration	Logical	6	1
32	A	Medium	Mathematics	Ratio and proportion	Application	6	1
33	B	Difficult	Mathematics	Mensuration	Calculation	6	1
34	D	Easy	Mathematics	Data handling	Calculation	6	1
35	C	Medium	Mathematics	Mensuration	Conceptual	6	1
36	A	Medium	Mathematics	Data handling	Calculation	6	1
37	C	Easy	Mathematics	Data handling	Calculation	6	1
38	A	Easy	Mathematics	Data handling	Logical	6	1
39	B	Medium	Mathematics	Data handling	Calculation	6	1
40	C	Medium	Mathematics	3d shapes	Logical	6	1
41	A	Difficult	Mathematics	Basic equation	Application	6	1
42	B	Medium	Mathematics	Integers	Conceptual	6	1
43	C	Easy	Mathematics	Basic percentage	Conceptual	6	1
44	A	Medium	Mathematics	Basic percentage	Application	6	1

45	A	Medium	Mathematics	3d shapes	Application	6	1
46	A	Easy	Science	Physical and chemical Change	Conceptual	6	1
47	A	Medium	Science	Physical and chemical Change	Memory based	6	1
48	A	Medium	Science	Physical and chemical Change	Memory based	6	1
49	B	Medium	Science	Weather and Climate	Application	6	1
50	B	Medium	Science	Adaptation	Conceptual	6	1
51	D	Medium	Science	Light	Conceptual	6	1
52	B	Easy	Science	Light	Memory based	6	1
53	D	Medium	Science	Light	Application	6	1
54	D	Difficult	Science	Reproduction in Plants	Application	6	1
55	C	Medium	Science	Reproduction in Plants	Memory based	6	1
56	C	Medium	Science	Reproduction in Plants	Memory based	6	1
57	C	Medium	Science	Physical and chemical Change	Calculation	6	1
58	D	Medium	Science	Physical and chemical Change	Memory based	6	1
59	B	Medium	Science	Water	Memory based	6	1
60	C	Easy	Science	Air Around us	Memory based	6	1

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