VMC Vidyamandir Classes SINCE 1986

IIT JEE | MEDICAL | FOUNDATION

SAMPLE PAPERS

NAT National Admission Test

For Students

Going to **Class 8th**

1+4 Year Program

PRE FOUNDATION

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VMC Vidyamandir Classes SINCE 1986
IIT JEE | MEDICAL | FOUNDATION

CODE A

Sample Paper – 5 Year Program

NATIONAL ADMISSION 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]

1. In a certain code, if BETTER is coded as 527729, and BUT AS 537, HOW IS BUTTER code in that CODE?

(A) 357729 **(B)** 537729 **(C)** 357792 **(D)** 537792

2. If + means / , × means – , / means × and – means + , then 8 + 6 × 4 / 3 – 4 equals:

(A) –2 **(B)** –20/3 **(C)** 4 **(D)** –4

3. If – means +, + means –, × means /, / means ×, then what is the value 24 × 8 / 6 – 3 + 3 / 6?

(A) 3 **(B)** 9 **(C)** 16 **(D)** 8

4. Vishal, Priyatham, Raghu, Karthik and Veeru are five friends. Vishal is twice as old as priyatham. Raghu is half age of Priyatham. Vishal is half the age of Veeru and Raghu is twice the age of Karthik. Who is the youngest ?

(A) Veeru **(B)** Karthik **(C)** Vishal **(D)** Raghu

5. If Jan 26 2012 was a Friday then March 1 of that same year will be:

(A) Tuesday **(B)** Monday **(C)** Thursday **(D)** Friday

6. In a certain language, BUTTER is coded as CVUUFS, BREAD is coded as CSFBE, the how COFFEE is coded?

(A) DPGGFF **(B)** GGDPFF **(C)** GDPGFF **(D)** FFDPGG

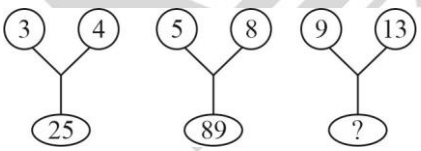
7. Pointing towards a woman in a photograph, Vijay said, "She is the daughter of the father of the sister of my brother". How is the lady in photograph related to Vijay?"

(A) Daughter **(B)** Wife **(C)** Mother **(D)** None of these

8. A cube is painted on all its 6 faces. It is then cut into 64 equal cubes. How many cubes have one face coloured?

(A) 8 **(B)** 24 **(C)** 32 **(D)** 16

9.



What term will come in place of question mark (?)

(A) 144 **(B)** 169 **(C)** 210 **(D)** 250

10. SIP : GULP bears the same relation as:

(A) Soup : Water **(B)** Ten : Hut **(C)** Touch : Push **(D)** Cut : Glass

SECTION - II [MATHEMATICS]

11. The set of negative numbers and whole numbers is called ?

(A) Natural numbers **(B)** Integers

(C) Composite numbers **(D)** Prime numbers.

12. Which of the following statements is FALSE?

(A) 2 and –2 are additive inverse

(B) The product of two odd numbers is always an even number

(C) The product of two even numbers is always an even number

(D) None of the above

13. The sum of 3 odd numbers and 4 even numbers is:

(A) Even **(B)** Odd **(C)** Can't say **(D)** 0

14. On the number line, how many steps will you move when move from –3 to +3:

(A) 3 **(B)** 6 **(C)** 7 **(D)** 4

15. **Statement p :** when 2 positive integers and a negative integer are added we always get a positive integer

Statement q : when two negative integers and 1 positive integer are added, we always get a negative integer, then

(A) Both p and q are true **(B)** p is true and q is false

(C) p is false, and q is true **(D)** Both p and q are false

16. Which of the following numbers cannot be a perfect square (*a* is a single-digit natural number)?

(A) *a* 6 **(B)** *a* 000 **(C)** *a* 00 **(D)** *a* 1

17. Simplify :

$\left[15 \div 3 + 10\{60 - 8 \div 4 + 3\,(5 \text{of } \overline{3-7})\}\right]$

(A) –20 **(B)** –15 **(C)** 12 **(D)** 16

18. $-(-9)-(-6) = ?$

(A) −15 **(B)** −3 **(C)** 3 **(D)** None of these

19. $0 \div (-4) = ?$

(A) −4 **(B)** 0 **(C)** Not defined **(D)** 4

20. The value of 3 and 2 third × 2 and 1 fourth ÷ 11 is:

(A) $\frac{2}{3}$ **(B)** $\frac{3}{4}$ **(C)** $\frac{1}{3}$ **(D)** $\frac{1}{4}$

21. Given that $a/b = c/d$ then which of the statements is true?

(A) $a/c = b/d$ **(B)** $ad = bc$ **(C)** $ac = bd$ **(D)** All except C

22. How many parts should be shaded in the figure B to make it represent the same fraction as the unshaded part of the figure A?

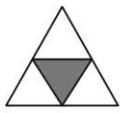


Figure A

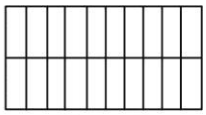


Figure B

(A) 4 **(B)** 5 **(C)** 10 **(D)** 8

23. India won 6 games, lost 4 and drawn 2. What fraction of the games did India not lose?

(A) $\frac{1}{2}$ **(B)** $\frac{1}{3}$ **(C)** $\frac{2}{3}$ **(D)** $\frac{1}{6}$

24. Ravi reads $\frac{4}{5}$ of a book. He finds that there are still 100 pages left to be read. What is the total number of pages he had read in the book?

(A) 100 **(B)** 500 **(C)** 300 **(D)** 400

25. Which of the following statements is true?

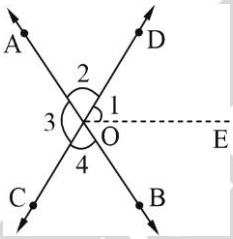
(A) Fractions with the same numerator are called unlike fractions

(B) Fractions with the same denominator are called like fractions

(C) Difference of two like fractions = difference of numerators/common denominator

(D) Both B and C

26. In the figure below OE is the bisector of angle BOD. If Angle 1 = 70°, find the sum of Angles 2 , 3 & 4.

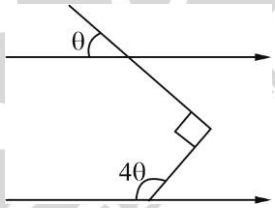


(A) 190 **(B)** 220 **(C)** 240 **(D)** 260

27. If an angle is five times to its complementary angle find the supplementary angle of that angle:

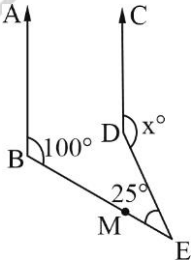
(A) 15° **(B)** 75° **(C)** 105° **(D)** 30°

28. Find the value of 2θ in the figure:



(A) 30 **(B)** 60 **(C)** 45 **(D)** 75

29. In the figure below AB || CD, ∠ABE =100°, ∠DEM = 25°. Find ∠CDE



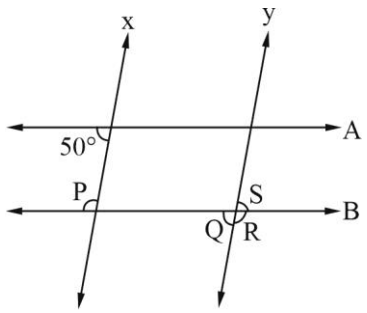
(A) 55 **(B)** 105 **(C)** 125 **(D)** 155

30. Which of the following is correct?

(A) 0.672< 0.738 < 0.536< 0.813 **(B)** 0.536< 0.672< 0.732 < 0.813

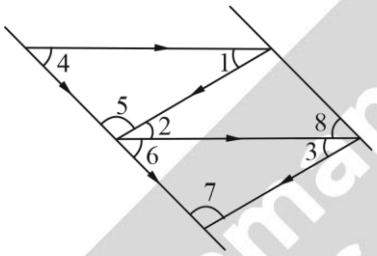
(C) 0.813 < 0.732 < 0.672< 0.536 **(D)** 0.536< 0.732 < 0.672< 0.813

31. Line $x \parallel y$, A ||B, then find P + Q + R – S



(A) 360° **(B)** 330° **(C)** 260° **(D)** 130°

32. Which of the following options is/are INCORRECT?



(A) $\angle 1 = \angle 3 = 90$ **(B)** $\angle 1 + \angle 4 + \angle 5 = 180$

(C) $\angle 1 + \angle 6 = 180$ **(D)** Both A and C

33. ABC is an isosceles triangle with AB = BC and BD is altitude, then :

(A) $\angle B = \angle C$ **(B)** $\angle A = \angle C$ **(C)** $\angle B = \angle A$ **(D)** None of these

34. If $\left(\frac{2}{3}\right)^3 = \left(\frac{3}{2}\right)^x$ then x is equal to:

(A) 3 **(B)** –3 **(C)** 0 **(D)** $\frac{1}{2}$

35. The product of $\frac{4p}{3} - 5$ and $\frac{5p}{4} - 4$

(A) $\frac{5p^2}{3} - 139\frac{p}{12} + 20$ **(B)** $\frac{5p^2}{3} - 139\frac{p}{12} - 20$

(C) $\frac{5p^2}{3} + 139\frac{p}{12} - 20$ **(D)** $\frac{5p^2}{3} + 139\frac{p}{12} + 20$

36. The expression $5p^2q - 20\,pq$ when subtracted from $4p^2q - 16\,pq$ becomes:

(A) $p^2q - 4\,pq$ **(B)** $-p^2q - 4\,pq$ **(C)** $-p^2q + 4\,pq$ **(D)** $p^2q + 4\,pq$

37. If $x + \frac{1}{x} = 14$ and $x^2 - \frac{1}{x^2} = 84$. Then the value of $x - \frac{1}{x}$ is:

(A) 12 **(B)** 13 **(C)** 17 **(D)** None of these

38. If $5^a \times 25^b = 125^c$ then what is the relation between a,b,c?

(A) $a + b = c$ **(B)** $2a + b = c$ **(C)** $a + 2b = 3c$ **(D)** $2a + b = 3c$

39. Which of the expression represents 2 less than x is equal to y less than 3?

(A) $x - 2 = 3 - y$ **(B)** $2 - x = 3 - y$ **(C)** $x + 2 = y + 3$ **(D)** $x + 3 = y + 2$

40. If $x^2 - 2x + 1 = 0$, find $x^2 + \frac{1}{x^2} = ?$ where x is a natural number:

(A) 2 **(B)** 0 **(C)** –2 **(D)** 1

41. $a = 5b = 5$ find $4a^2 + 3b^2$

(A) 101 **(B)** 102 **(C)** 100 **(D)** 103

42. If $\left(\frac{3}{5}\right)^3 \left(\frac{5}{3}\right)^{-6} = \left(\frac{3}{5}\right)^{2x-1}$ then $x =$

(A) 4 **(B)** 5 **(C)** 3 **(D)** 2

43. Subtract $(2a - 3b + 4c)$ from the sum of $(a + 3b - 4c)$, $(4a - b + 9c)$ and $(-2b + 3c - a)$.

(A) $3a + 2b - 4c$ **(B)** $2a - 2b + 4c$ **(C)** $5a + 4b - 2c$ **(D)** $2a + 3b + 4c$

44. The Age of R is 2 yrs more than $\frac{1}{2}$ the age of B. Then it can be represented by:

(A) R = B + 4 **(B)** R = 2B + 4 **(C)** 2R = B + 4 **(D)** $R = \frac{1}{2} B - 2$

45. Ravi spends Rs. x daily and saves Rs. $2y$ per week. What is his income in 3 weeks?

(A) Rs.$(21x + 6y)$ **(B)** Rs.$(3x + 9y)$ **(C)** Rs.$(21x + 3y)$ **(D)** Rs.$(7x + 3y)$

SECTION - III [SCIENCE]

46. Which solution is used to test the starch?

(A) Chlorine Solution **(B)** Iodine solution
(C) Both of these **(D)** None of these

47. Rhizopus is a:

(A) Autotroph **(B)** Heterotroph **(C)** Saprophyte **(D)** None of these

48. What mode of nutrition is followed when an organism makes its food from carbon dioxide and water present in the surrounding:

(A) Heterotrophic nutrition **(B)** Saprotrophic nutrition
(C) Autotrophic nutrition **(D)** Holozoic nutrition

49. Which of the following best describes the characteristic of materials when it becomes warm?

(A) Contract **(B)** Vaporize **(C)** Float **(D)** Expand

50. If you place your hand underneath but not touching a kettle of hot water. You mailnly feel the presence of heat from:

(A) Conduction **(B)** Convection **(C)** Radiation **(D)** Evaporation

51. Which location on earth receives the most solar radiation in any given year (WSC).

(A) Poles **(B)** Oceans **(C)** Tropics **(D)** Equator

52. What could work against the development of a thunderstorm?

(A) Rising air **(B)** Stable air **(C)** Moisture **(D)** Suspended air

53. A Uniform Motion takes place in:

(A) Curved Path **(B)** Straight Path **(C)** Circular Path **(D)** Both A and B

54. Two bodies moving with same speed but in different directions will have:

(A) Same velocities **(B)** Different speed

(C) Same displacement **(D)** Different velocities

55. A Chemical reaction is given below

$4NH_3(g) + 5O_2(g) \longrightarrow 4NO(g) + 6H_2O(g)$

1. Displacement reaction 2. Combination reaction
3. Redox reaction 4. Neutralisation reaction

(A) 1 and 2 **(B)** 2 and 4 **(C)** 1 and 3 **(D)** 3 and 4

56. 3 beakers A, B and C are taken each containing 20 ml of water . A small amount of NaOH, anhydrous $CuSO_4$ and NaCl were added to the beakers A, B and C respectively. On Observing, there was an increase in the temperature of the solutions contained in A and B, whereas in C, the temperature of the solution falls. Which one of the following statement(s) is (are) correct?

1 Exothermic process has occurred In beakers A and B
2 Endothermic process has occurred In beakers A and B
3 Exothermic process has occurred In beaker C
4 Endothermic process has occurred In beaker C

(A) Only 1 **(B)** 1 and 4 **(C)** Only 2 **(D)** 2 and 3

57. The ratio of hydrogen and Oxygen in water , by mass is:

(A) 1:8 **(B)** 2:1 **(C)** 1:2 **(D)** 1:1

58. At which stage in silkworm is feeding required the most?

(A) Cocoon stage **(B)** Pupa stage **(C)** Larva stage **(D)** Adult stage

59. In a map Polar regions are marked by:

(A) Blue lines **(B)** Red lines **(C)** Green Lines **(D)** Yellow lines

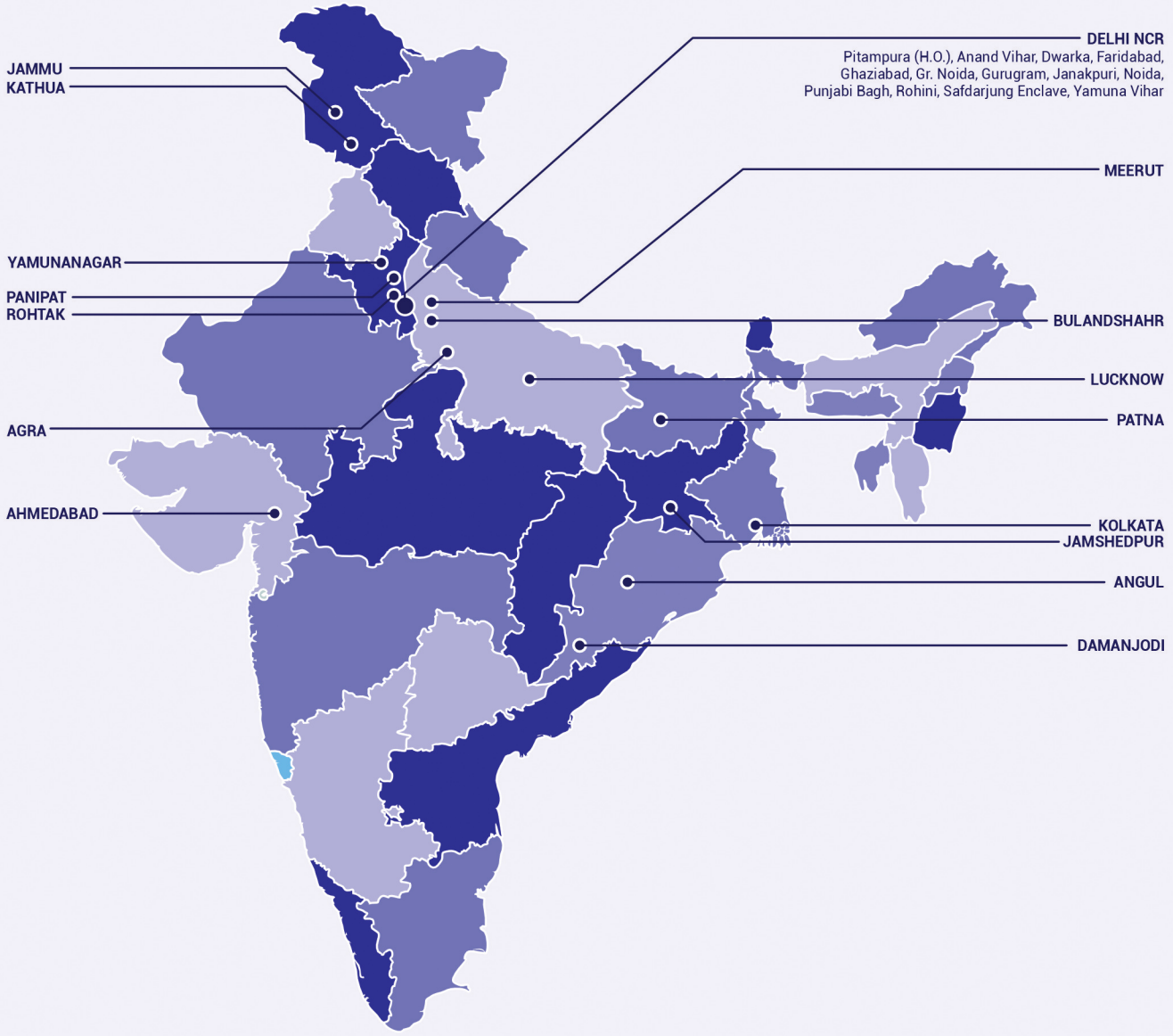
60. Which organ in human body does not secrete digestive juices:

(A) Large Intestine **(B)** Stomach **(C)** Small Intestine **(D)** Oesophagus

End of NAT Sample Paper| 5 Year [Foundation]

5 Year Foundation Sample Paper | Answer Key							
Code-A Mapping	**Code-A_Answer Key**	**Code-A Difficulty**	**Code-A Subject**	**Code-A Topic (Chapter)**	**Code-A Skill (Base)**	**Code-A +Ve Marks**	**Code-A -Ve Marks**
1	**B**	Medium	Mental Aptitude	Coding	Calculation	5	1
2	**B**	Medium	Mental Aptitude	Symbol logic	Conceptual	5	1
3	**A**	Easy	Mental Aptitude	Symbol logic	Calculation	5	1
4	**B**	Medium	Mental Aptitude	Ranking test	Conceptual	5	1
5	**D**	Easy	Mental Aptitude	Calendars	Calculation	5	1
6	**A**	Easy	Mental Aptitude	Coding decoding	Application	5	1
7	**D**	Easy	Mental Aptitude	Blood Relation	Application	5	1
8	**B**	Medium	Mental Aptitude	Cube	Calculation	5	1
9	**D**	Medium	Mental Aptitude	Arithmetical Reasoning	Application	5	1
10	**C**	Easy	Mental Aptitude	Analogy	Application	5	1
11	**B**	Easy	Mathematics	Integers	Memory based	6	1
12	**B**	Easy	Mathematics	Integers	Conceptual	6	1
13	**B**	Easy	Mathematics	Integers	Conceptual	6	1
14	**B**	Easy	Mathematics	Integers	Conceptual	6	1
15	**D**	Medium	Mathematics	Integers	Application	6	1
16	**B**	Easy	Mathematics	Integers	Application	6	1
17	**B**	Medium	Mathematics	Integers	Memory based	6	1
18	**D**	Easy	Mathematics	integers	Application	6	1
19	**B**	Easy	Mathematics	Integers	Application	6	1
20	**B**	Easy	Mathematics	Fractions	Conceptual	6	1
21	**D**	Medium	Mathematics	Fractions	Conceptual	6	1
22	**B**	Medium	Mathematics	Symmetry	Application	6	1
23	**C**	Easy	Mathematics	Fractions	Application	6	1
24	**D**	Easy	Mathematics	Fractions	Calculation	6	1
25	**D**	Medium	Mathematics	Fractions	Calculation	6	1
26	**B**	Medium	Mathematics	Lines and Angle	Calculation	6	1
27	**C**	Medium	Mathematics	Lines and Angle	Application	6	1
28	**B**	Medium	Mathematics	Lines and Angle	Calculation	6	1
29	**C**	Medium	Mathematics	Lines and Angle	Application	6	1
30	**B**	Easy	Mathematics	Decimals	Calculation	6	1
31	**C**	Medium	Mathematics	Lines and Angle	Application	6	1
32	**D**	Easy	Mathematics	Lines and Angle	Calculation	6	1
33	**B**	Medium	Mathematics	Triangles	Application	6	1
34	**B**	Medium	Mathematics	Exponents and Powers	Conceptual	6	1
35	**A**	Medium	Mathematics	Algebraic Expression	Calculation	6	1
36	**C**	Easy	Mathematics	Algebraic Expression	Calculation	6	1
37	**D**	Medium	Mathematics	Algebraic Expression	Calculation	6	1
38	**C**	Easy	Mathematics	Exponents and Powers	Application	6	1
39	**B**	Medium	Mathematics	Algebraic Expression	Application	6	1
40	**A**	Medium	Mathematics	Algebraic Expression	Application	6	1
41	**D**	Easy	Mathematics	Algebraic Expression	Application	6	1
42	**B**	Medium	Mathematics	Exponents and Powers	Conceptual	6	1
43	**D**	Easy	Mathematics	Algebraic Expression	Calculation	6	1
44	**C**	Easy	Mathematics	Algebraic Expression	Application	6	1
45	**A**	Easy	Mathematics	Algebraic Expression	Application	6	1
46	**B**	Easy	Science	Nutrition in plants	Conceptual	6	1
47	**C**	Medium	Science	Nutrition in plants	Memory based	6	1
48	**C**	Medium	Science	Nutrition in Animals	Memory based	6	1
49	**D**	Medium	Science	Heat	Application	6	1
50	**C**	Medium	Science	Heat	Conceptual	6	1
51	**D**	Medium	Science	Weather	Conceptual	6	1
52	**B**	Easy	Science	Storms and winds	Memory based	6	1
53	**B**	Medium	Science	Motion	Application	6	1
54	**D**	Easy	Science	Motion	Application	6	1
55	**C**	Easy	Science	Physical and Chemical Changes	Memory based	6	1
56	**B**	Medium	Science	physical and Chemical Changes	Memory based	6	1
57	**A**	Medium	Science	Water	Calculation	6	1
58	**C**	Medium	Science	Fibre to Fabric	Memory based	6	1
59	**A**	Medium	Science	Weather	Memory based	6	1
60	**D**	Easy	Science	Nutrition in Animals	Memory based	6	1

VMC CENTRES ACROSS INDIA



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