Resonance®
Educating for better tomorrow

SAMPLE TEST PAPER

ResoNET-2023
Resonance National Entrance Test for Admission in
Pre –Foundation Career Care Programmes (PCCP)

Academic Session: 2023-24

Test Target

Class	X	Exam	SCHOOL|OLYMPIAD | NTSE
Course Name & Code	SMART/MT	Year	2024

Duration: 1.30 Hrs.

Test Structure

Total Questions	70	Maximum Marks	210
No. of Booklet (Test Paper)	01	No. of Pages (in Booklet)	00

Subject-wise Breakup

S.No.	Part	Subject	Type of Question	No. of Ques.	Marking Scheme		
					Full Marks per Qs.	Negative Marking	Total
1 to 25	I	Maths	Single Choice Questions (Only One Correct Option) (MCQ)	25	3	0	75
26 to 35	II	Physics	Single Choice Questions (Only One Correct Option) (MCQ)	10	3	0	30
36 to 45	III	Chemistry	Single Choice Questions (Only One Correct Option) (MCQ)	10	3	0	30
46 to 55	IV	Biology	Single Choice Questions (Only One Correct Option) (MCQ)	10	3	0	30
56 to 70	V	Mental Ability	Single Choice Questions (Only One Correct Option) (MCQ)	15	3	0	45
Total				70			210

Important Instructions

1. This booklet is your Question Paper. (यह पुस्तिका आपका प्रश्न–पत्र है)
2. Blank papers, clip boards, log tables, slide rule, calculators, mobile or any other electronic gadgets in any form are not allowed to be used. (खाली कागज, क्लिप बोर्ड, लघुगणक सारणी, स्लाइड रूल, कैल्कुलेटर, मोबाइल या अन्य किसी इलैक्ट्रॉनिक उपकरण के किसी भी रूप में उपयोग की अनुमति नहीं है)
3. Write your **Name** & **Application Form / Roll Number** in the space provided in the first page of this booklet.
   (प्रथम पृष्ठ के नीचे दिये गये रिक्त स्थान में अपना नाम व आवेदन फॉर्म संख्या / अनुक्रमांक अवश्य भरें)
4. Before answering the paper, fill up the required details in the blank space provided in the Objective Response Sheet (ORS). (प्रश्न–पत्र हल करने से पहले, ORS–शीट में दिये गये रिक्त स्थानों में पूछे गये विवरणों को भरें)
5. Do not forget to mention your paper code and **Application Form / Roll Number** neatly and clearly in the blank space provided in the Objective Response Sheet (ORS) / Answer Sheet. (ORS–शीट/उत्तर–पुस्तिका में दिये गये रिक्त स्थान में अपने प्रश्न–पत्र का कोड व अपना आवेदन फॉर्म संख्या / अनुक्रमांक स्पष्ट रूप से भरना ना भूलें)
6. No rough sheets will be provided by the invigilators. All the rough work is to be done in the blank space provided in the question paper. (निरीक्षक के द्वारा कोई रफ शीट नहीं दी जायेगी। रफ कार्य प्रश्न–पत्र में दिये गये खाली स्थान में ही करना है)
7. No query related to question paper of any type is to be put to the invigilator. (निरीक्षक से प्रश्न–पत्र से सम्बन्धित किसी प्रकार का कोई प्रश्न ना करें)
8. Marks distribution of questions is as follows. (प्रश्नों के अंकों का विवरण निम्न प्रकार से है।)

Student's Information

Name: _____ Application / Roll No.: _____

Mobile No.: _____ Signature: _____
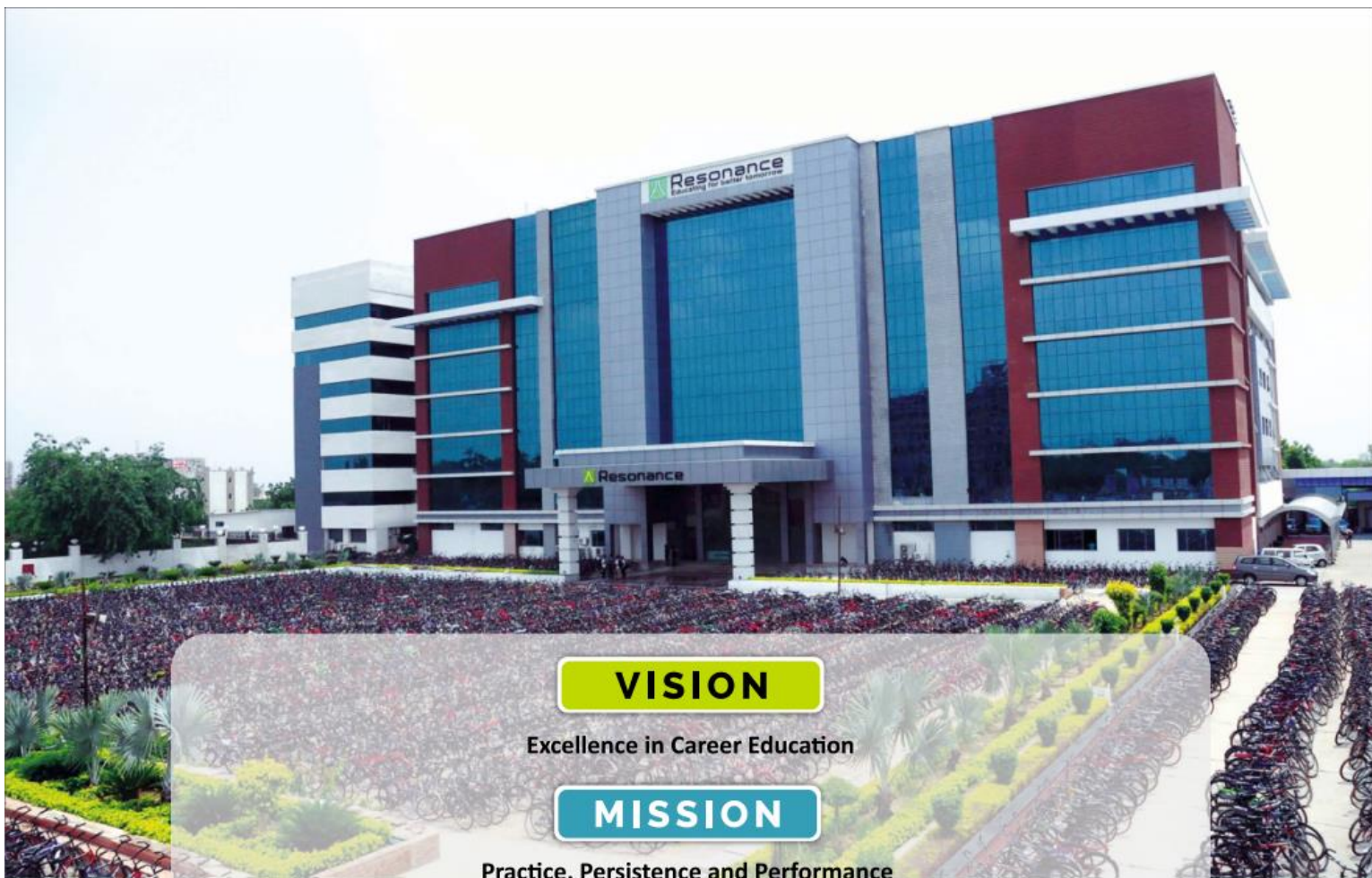
VISION

Excellence in Career Education

MISSION

Practice, Persistence and Performance

VALUES

- Leadership with humane touch at various levels
- Integrity, transparency and openness in all our actions
- Innovation and pursuit of excellence in career education
- Address the needs of students through career oriented initiatives
- Strive to continuously improve our processes and quality of deliverables

About Resonance

Established on 11ᵗʰ April 2001 at Kota, Rajasthan

Founder: Mr. R. K. Verma (RKV Sir)
B.Tech. (IIT-Madras, 1994)
Managing Director, Head (Academics) & Senior Faculty (Physics)

Division	Classes	Target Examinations
Pre-Engineering Division	IX, X, XI, XII & XII+	JEE (Advanced) | JEE (Main) | Olympiads
Pre-Medical Division	IX, X, XI, XII & XII+	NEET (UG) | Olympiads
Pre-foundation Career Care Programme Division (PCCP)	V, VI, VII, VIII, IX & X	NTSE | Olympiads | STSE | School & Board Examinations
Commerce & Law Programme Division (CLPD)	XI, XII & XII+	CA | CS | CLAT | B.Com | Board | CUET-UG
Resonance Multiple Examination Division (ResoMEx)	XII+	SSC | BANK | RAILWAYS | NDA | Other Govt. & Private Recruitment Exams
Para-Schooling Programme Division (PSPD)	XI, XII & XII+	Board Exams | CUET-UG | IPMAT | JIPMAT | BITSAT | STSE | UCEED | College Entrance Exam UG & Scholarship Exams
Distance Learning Programme Division (DLPD)	V to XII & XII+	JEE (Main & Advanced) | NEET (UG) | OLYMPIADS | NTSE | BITSAT
e-Learning Programme Division (e-LPD)	V to XII & XII+	JEE (Main & Advanced) | NEET (UG) | OLYMPIADS | NTSE | BITSAT
Reso - International Studies Division	VI to XII & XII+	JEE (Main & Advanced) | NEET (UG) | OLYMPIADS | NTSE | BITSAT Upcoming - SAT | IELTS | GRE | PTE

Syllabus of Class-IX_ Reso NET

Physics :

❖ Motion

❖ Force and newton's laws

❖ Gravitation

Chemistry :

❖ Matter in our surroundings

❖ Is matter around us pure

Biology :

❖ Fundamental unit of life

❖ Tissue

❖ Improvement in food resources

Mathematics :

❖ Number system

❖ Polynomials

❖ Coordinate geometry

❖ Lines and angles

❖ Congruent triangles

❖ Linear equations in two variables

Mental Ability :

❖ Number-series

❖ Alphabet-series

❖ Missing term in figures

❖ Coding-eecoding

❖ Direction sense test

❖ Seating arrangement

❖ Puzzle test

❖ Syllogism

❖ Calendar test

❖ Dice test

❖ Venn Diagram

1. Which of the following is incorrect?
(A) Euclid fifth postulate imply the existence of parallel lines.
(B) Two points are always collinear.
(C) Two lines perpendicular to the same line are parallel to each other.
(D) None of these.

2. In the given figure AB = AC and $\angle ACD = 110°$, then the value of $\angle A$ is
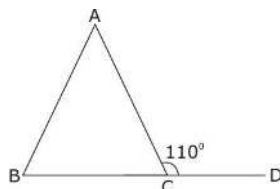
(A) 20°.   (B) 30°.
(C) 40°.   (D) 50°.

3. Choose the rational number which does not lie between rational numbers $-\dfrac{2}{5}$ and $-\dfrac{1}{5}$

(A) $-\dfrac{1}{4}$ (B) $-\dfrac{3}{10}$

(C) $\dfrac{3}{10}$ (D) $-\dfrac{7}{20}$

4. x and x + y are the square of two consecutive natural number. What is the square of the next natural number ?
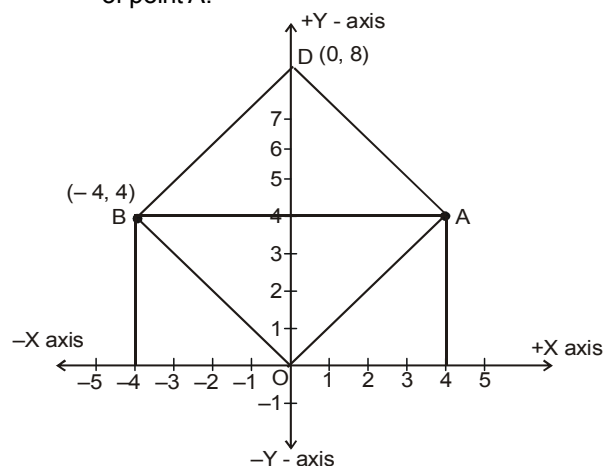(A) x + 2y   (B) x + 2y + 2
(C) x + 3y   (D) x + y²

5. If $\dfrac{3x+6}{8} - \dfrac{11x-8}{24} + \dfrac{x}{3} = \dfrac{3x}{4} - \dfrac{x+7}{24}$, then the value of x is
(A) x = 3   (B) x = 2
(C) x = 1   (D) x = 4

6. If $8^{x-1} = 2^{x+3}$, value of x will be
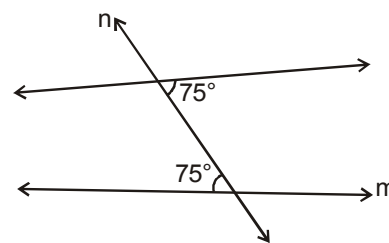(A) 2   (B) 4
(C) 1   (D) 3

7. If AOBD is a square then find the coordinates of point A.

(A) $(4, 4\sqrt{2})$ (B) (4, 4)
(C) $(4\sqrt{2}, 4)$ (D) None of these

8. Given two lines ℓ and m, these lines :

(A) Will intersect on left side of line n
(B) Will intersect on right side of line n
(C) are parallel
(D) None of these

9. In the given figure, AB || CD, $\angle ABO = 40°$ and $\angle CDO = 30°$. If $\angle DOB = x°$, then the value of x is :
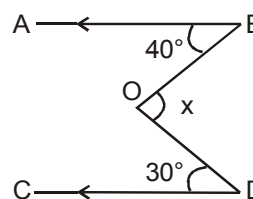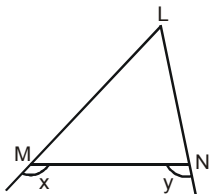

(A) 35   (B) 110
(C) 70   (D) 140

(Space For Rough Work)

10. A man born in the first half of the 19th century was x years old in the year x^2. He was born in:
(A) 1849   (B) 1806
(C) 1812   (D) 1825

11. In the given figure, x > y. Hence

(A) LM = LN
(B) LM < LN
(C) LM > LN
(D) None of these

12. If 'm' and 'n' are natural numbers such that $\sqrt{7+\sqrt{48}}$ = $\sqrt{m}$ + $\sqrt{n}$ then $m^2 + n^2$ equals :
(A) 25   (B) 37
(C) 29   (D) 41

13. If N = $\dfrac{\sqrt{\sqrt{5}+2}+\sqrt{\sqrt{5}-2}}{\sqrt{\sqrt{5}+1}}-\sqrt{3-2\sqrt{2}}$

then the value of N is :
(A) $2\sqrt{2}-1$ (B) 2
(C) 1   (D) $\sqrt{5}-\sqrt{2}$

14. Which is the greatest number amongst $2^{1/2}$, $3^{1/3}$, $8^{1/8}$ and $9^{1/9}$?
(A) $9^{1/9}$ (B) $8^{1/8}$
(C) $3^{1/3}$ (D) $2^{1/2}$

15. What is the remainder when the polynomial $p(x) = x^{200} - 2x^{199} + x^{50} - 2x^{49} + x^2 + x + 1$ is divided by (x − 1) (x − 2) ?
(A) 1   (B) 7
(C) 2x + 1   (D) 6x − 5

16. If $\dfrac{p}{a}+\dfrac{q}{b}+\dfrac{r}{c}$ = 1 and $\dfrac{a}{p}+\dfrac{b}{q}+\dfrac{c}{r}$ = 0 then the value of $\dfrac{p^2}{a^2}+\dfrac{q^2}{b^2}+\dfrac{r^2}{c^2}$ is :
(A) 0   (B) −11
(C) 9   (D) 1

17. If x,y are positive real numbers satisfying the system of equations $x^2 + y\sqrt{xy}$ = 336, $y^2 + x\sqrt{xy}$ = 112, then x + y equals
(A) $\sqrt{448}$ (B) $\sqrt{224}$
(C) 20   (D) 40

18. x and y are real numbers such that $7^x - 16y = 0$ and $4^x - 49y = 0$, then the value of (y − x) is
(A) $\dfrac{5}{2}$ (B) $\dfrac{19}{5}$
(C) $\dfrac{4115}{2013}$ (D) $\dfrac{1569}{784}$

19. In the adjoining figure AB = AC and DEF is an equilateral triangle . Then
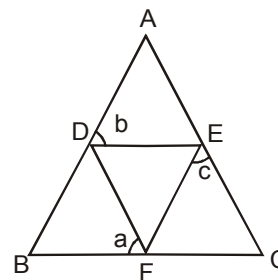
(A) a + b + c = 180°   (B) a + b = 2c
(C) a = $\dfrac{b+c}{2}$ (D) a + c = 2b

(Space For Rough Work)

20. The number of squares on a coordinate plane with one vertex at A(–2, 2) and at least one of the coordinate axes as axis of symmetry of the square is

(A) 3   (B) 5
(C) 6   (D) 7

21. How many number of lines does pass through two distinct points.

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

22. In $\triangle$ ADE, $\angle$ ADE = 140°. B and C are points on AD and AE respectively. A,B,C,D,E are all distinct. If AB = BC = CD = DE then $\angle$ EAD is equal to

(A) 10°   (B) 20°
(C) 70°   (D) None of these

23. Find the value of

$$\left(1-\frac{1}{2^2}\right)\left(1-\frac{1}{3^2}\right)\left(1-\frac{1}{4^2}\right)......\left(1-\frac{1}{2007^2}\right)$$

(A) $\dfrac{2008}{2007}$ (B) $\dfrac{1004}{2007}$

(C) $\dfrac{2007}{2008}$ (D) 1

24. The value of x which satisfy $\dfrac{6x+5}{4x+7}=\dfrac{3x+5}{2x+6}$ is :

(A) –1   (B) 2
(C) 1   (D) –2

25. One fourth of one third of one half of a number is 12, then number is :

(A) 284   (B) 286
(C) 290   (D) 288

26. The unit of change in momentum is :

(A) N × s   (B) N/s

(C) N   (D) $\dfrac{kg \times s}{m}$

27. If a force is conservative :

(A) work is path independent
(B) it will be central
(C) potential energy remains constant
(D) none of these

28. A body goes from A to B with a velocity of 20 m/s and comes back from B to A with a velocity of 30 m/s. The average velocity of the body during the whole journey is :

(A) Zero   (B) 24 m/s
(C) 25 m/s   (D) None of these

29. The value of g on earth surface is 9.8 m/s², then the value of g at earth's centre in m/sec² is :

(A) 9.8   (B) 19.6
(C) 4.9   (D) zero

30. The weight of a boy on the surface of moon is 300 N. The weight of this boy on the surface of earth is :

(A) 300 N   (B) 5 N
(C) 50 N   (D) 1800 N

31. A body is thrown up with an initial velocity u and covers a maximum height of h, then h is equal to :

(A) $\dfrac{u^2}{2g}$ (B) $\dfrac{u}{2g}$

(C) 2 ug   (D) None of these

32. The value of g on moon is 1 / 6 th of the value of g on earth . A man can jump 1.5 m high on the earth.He can jump on the moon upto a height of :

(A) 9 m   (B) 7.5 m
(C) 6 m   (D) 4.5 m

33. Weightlessness experienced while orbitting in a space ship is the result of :

(A) Inertia   (B) Zero gravity
(C) Centre of gravity   (D) Acceleration

(Space For Rough Work)

34. Two blocks, one of iron (i) and the other of wood (w) are dropped from a height at the same time. If the time taken by the blocks to reach the ground is T_i and T_w respectively, then :
(A) $T_i < T_w$ (B) $T_i = T_w$
(C) $T_i > T_w$ (D) $T_i = 1/2\ T_w$

35. When a space ship is at a distance of two earth's radius from the centre of the earth, the gravitational acceleration is :
(A) 19.6 ms^{-2} (B) 9.8 ms^{-2}
(C) 4.9 m/s^2 (D) 2.45 ms^{-2}

36. What happens to the volume of the aqueous solution when small amount of sugar is dissolved in it ?
(A) Volume increases
(B) Volume decreases
(C) Volume first increases then decreases.
(D) No change in volume.

37. Which of the following is not correct for gases ?
(A) Gases have definite mass.
(B) Gases have definite shape.
(C) Gases have definite volume.
(D) Both (B) and (C)

38. On changing which of the following, the states of matter will change ?
(A) Temperature   (B) Pressure
(C) (A) & (B) both   (D) None of these

39. Melting & freezing point of water -
(A) are same.
(B) have large difference between them.
(C) have close difference between them.
(D) None of these

40. During evaporation, particles of a liquid change into vapours only -
(A) from the surface.
(B) from the bulk.
(C) from both surface and bulk.
(D) neither from surface nor from bulk.

41. Rate of evaporation depends upon -
(A) temperature   (B) surface area
(C) humidity   (D) All of these

42. Air is regarded as a -
(A) compound   (B) mixture
(C) element   (D) electrolyte

43. Colloids which is not possible
(A) Gas in liquid   (B) Liquid in liquid
(C) Solid in solid   (D Gas in Gas

44. Which of the following provides an example of a true solution ?
(A) Blood   (B) Milk
(C) Starch solution   (D) Sugar solution

45. Which of the following will show Tyndall effect ?
(A) Starch solution
(B) Sodium chloride solution
(C) Copper sulphate solution
(D) Sugar solution

46. The endomembrane system of the cell includes
(A) mitochondria.   (B) plastids.
(C) nucleus.   (D) ER

47. The membrane bound structures of the golgi apparatus are called
(A) plastids.   (B) vacuoles.
(C) cisternae.   (D) ribosomes

48. The fluid content of the vacuoles is called
(A) water.   (B) cell sap.
(C) cytoplasm.   (D) nucleoplasm.

49. Chromosomes are made of:
(A) DNA only
(B) DNA and fats
(C) DNA and proteins
(D) DNA and carbohydrates

(Space For Rough Work)

50. Part of body which is not exclusively supplied with involuntary muscles
(A) muscular coats of blood vessels.
(B) muscles of limbs
(C) muscles of iris.
(D) muscles of urethra.

51. Mast cells secrete
(A) histidine.
(B) histamine.
(C) antibodies.
(D) troponin

52. Protein present in the matrix of cartilage is known as
(A) chondrin
(B) chitin.
(C) cellulase.
(D) casein.

53. Plants take up nitrogen in the form of
(A) free nitrogen.
(B) molecular nitrogen.
(C) amino acids.
(D) nitrates and nitrites.

54. The most common species of honey bee maintained for collecting honey and wax is
(A) *Apis dorasata.*
(B) *Apis florae.*
(C) *Apis indica.*
(D) *Apis mellifera*

55. The practice concerned with the improvement of animals is
(A) poultry.
(B) animal husbandry.
(C) bee keeping.
(D) fishery.

Direction : (56 to 59) Find the missing terms.

56. 7,19, 55, 163, _
(A) 387
(B) 329
(C) 527
(D) 487

57. 5, 3, 6, 2, 7, 1, ?
(A) 0
(B) 2
(C) 8
(D) 4

58. ZGL, XHN, VIQ, TJU, ?
(A) RKX
(B) RKY
(C) RLZ
(D) RKZ

59.

	4	2	
5	80	99	8
1	63	?	6
	7	7	

(A) 169
(B) 168
(C) 85
(D) 706

Direction : (60) Which sequence of letters when placed at the blanks one after the other will complete the given letter series ?

60. a – b a a – a a – – a b
(A) a a a a
(B) b a a a
(C) b b a a
(D) a b b a

61. If **MERCHANT** is **NDSBIZOS**, then **CANCER** is
(A) BZMBDQ
(B) BBMBDQ
(C) DBODFS
(D) DZOBFQ

62. **DRAMA** is coded as **37** and **STAGE** as **52**. How will you code **ACTOR** ?
(A) 56
(B) 50
(C) 57
(D) 67

63. If the alphabets were written in the reverse order, which letter will be the fifth letter to the left of the fourteenth letter from the left.
(A) R
(B) I
(C) S
(D) H

64. How many pairs of letters are there in the word, **'EXPERIENCED** 'which have as many letters between them in the word as in alphabet ?
(A) One
(B) Three
(C) Four
(D) More than four

65. Which interchange of signs will make the following equation true ?
12 – 3 × 2 ÷ 18 + 6 = 9
(A) ÷, –
(B) ÷, +
(C) ×, –
(D) +, –

(Space For Rough Work)

66. Pointing to a person, Rohit said to Neha, "His mother is the only daughter of your father. "How is Neha related to that person ?
(A) Aunt (B) Mother
(C) Daughter (D) Wife

Direction : (67) Read following information carefully and answer the questions given below it :
(i) A and B are good in Biology & Chemistry.
(ii) A & C are good in Biology & Physics.
(iii) C,D & E are good in Physics & History.
(iv) C & E are good in Physics & Mathematics.
(v) D & B are good in Chemistry & History.

67. Who is good in Physics, History & Mathematics but not in Biology ?
(A) D (B) C
(C) A (D) E

Direction : (68) Study the given information and answer the questions that following.
(i) P, Q, R, S T, U and V are sitting in a row facing East.
(ii) R is on the immediate right of S.
(iii) Q is at left extreme and has T as his immediate neighbour.
(iv) V is exactly between T and U.
(v) S is sitting third from the South end.

68. Who is sitting to the immediate right of T ?
(A) P (B) V
(C) S (D) U

69. In a queue of boys Sohan is **9th** from the back. Ramesh's place is **8th** from the front. Radhey is standing in between the two. What could be the minimum number of boys standing in the queue?
(A) 8 (B) 10
(C) 12 (D) 14

70. A man starts from his house and walks 3 km. towards South, then he turns left and walks 5 km. In which direction he is from his house ?
(A) South (B) East
(C) South East (D) North

ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	D	C	C	B	A	D	B	C	C	B	C	A	C	C	D
Ques.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	D	C	D	C	B	C	A	B	C	D	A	A	A	D	D
Ques.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	A	A	B	B	D	D	D	C	A	A	D	B	D	D	A
Ques.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	D	C	B	C	B	B	A	D	D	B	D	C	D	B	D
Ques.	61	62	63	64	65	66	67	68	69	70					
Ans.	D	C	A	D	B	B	D	B	B	C					

भारत का विश्वास
रेजोनेंस के साथ

CHANDIGARH 703

JAMMU & KASHMIR 2898

LADAKH 11

HIMACHAL PRADESH 1800

PUNJAB 6912

HARYANA 16,205

UTTARAKHAND 5206

DELHI 18,361

SIKKIM 119

MEGHALAYA 427

ARUNACHAL PRADESH 479

RAJASTHAN 2,31,427

Resonance Head Office KOTA

UTTAR PRADESH 1,46,716

BIHAR 88,872

ASSAM 9692

NAGALAND 340

GUJARAT 30,652

MADHYA PRADESH 70,840

JHARKHAND 9475

MANIPUR 742

DAMAN & DIU 116

CHHATTIS-GARH 16,379

WEST BENGAL 22,498

MIZORAM 91

DADRA & NAGAR HAVELI 84

MAHARASHTRA 99,593

ODISHA 15,659

TRIPURA 1423

GOA 378

TELANGANA 8207

KARNATAKA 1,02,336

ANDHRA PRADESH 4961

ANDAMAN & NICOBAR 199

LAKSHADWEEP 10

PUDUCHERRY 226

TAMILNADU 7616

KERALA 20,657

TOTAL ENROLLED STUDENTS

(April 2001 to March 2022)

9,42,310

Classroom:	5,44,210
ResoBASE:	70,844
DLP+eLP:	3,27,256

Note: The figures shown in the map are student count from respective State & Union Territory. The Map is only indicative and not to scale

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Resonance : The Legacy of 21 Years (2001-2022) of Academic Excellence

JEE (Adv.) / IIT-JEE ▶ **50 हजार +** SELECTIONS SINCE 2002
229 AIRs in TOP-100 (Classroom + DLP)

JEE (Main) / AIEEE ▶ **2.40 लाख+** SELECTIONS SINCE 2009
136 AIRs in TOP-100 (Classroom + DLP)

NEET (UG) / AIPMT ▶ **19 हजार+** SELECTIONS SINCE 2012
19 AIRs in TOP-100 (Classroom + DLP)

NTSE SINCE 2006 ▶ **2440** Scholars

KVPY SINCE 2006 ▶ **2859** Fellowship Winners

OLYMPIADS SINCE 2006 ▶ **52** Medalists (Gold/Silver/ Bronze) in International Olympiads
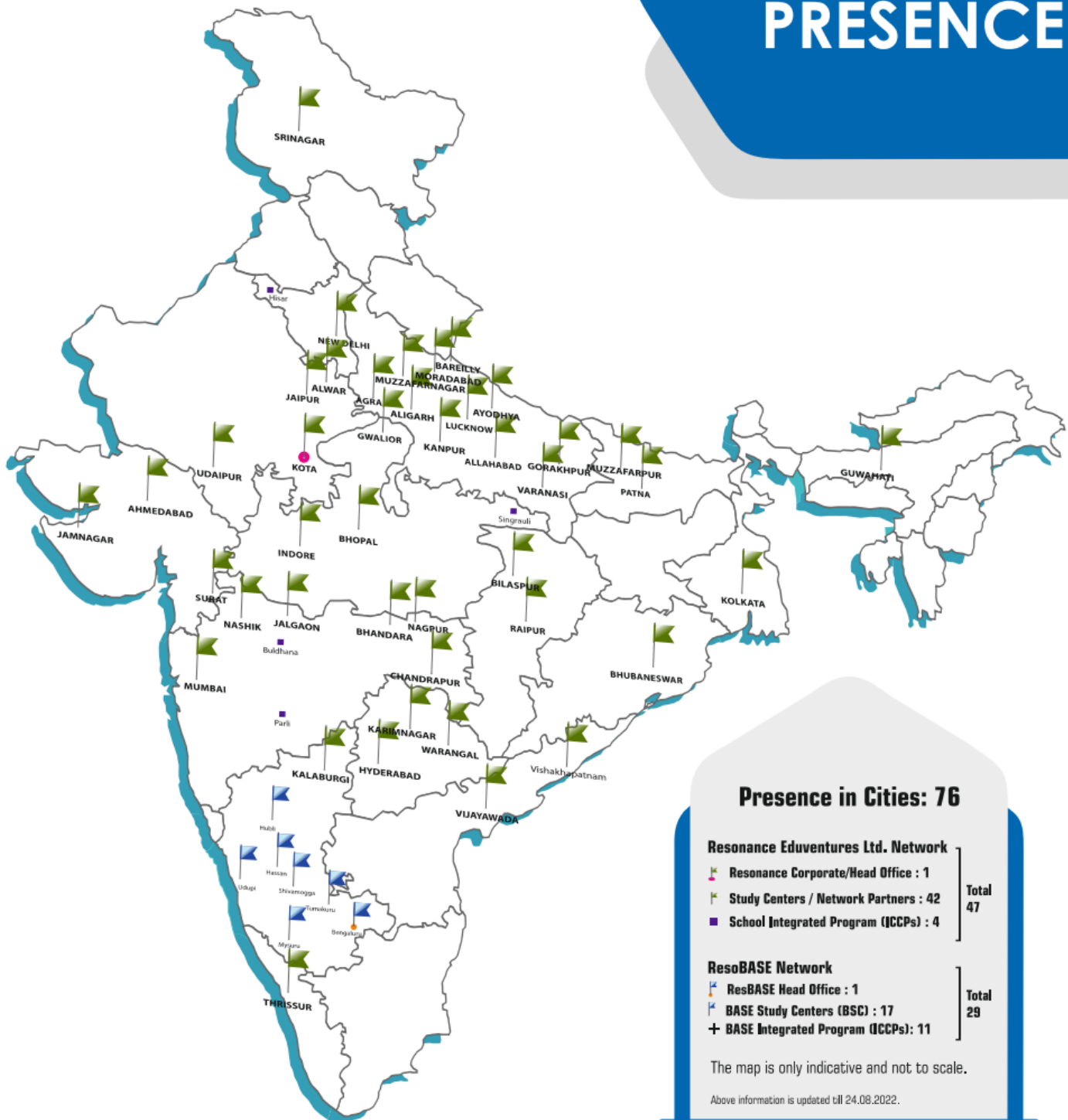
CA & CS SINCE 2013 ▶ **4179** Selections — 5 Times AIR-1 in CA & CS Exams

CLAT, SET & GPTU SINCE 2014 ▶ **77** Selections — AIR-1 in GPTU

Resonance®
Educating for better tomorrow

PAN INDIA PRESENCE

Map of India showing city presence: SRINAGAR, Hisar, NEW DELHI, BAREILLY, MORADABAD, MUZZAFARNAGAR, ALWAR, AGRA, ALIGARH, AYODHYA, JAIPUR, GWALIOR, LUCKNOW, KANPUR, KOTA, ALLAHABAD, GORAKHPUR, MUZZAFARPUR, GUWAHATI, UDAIPUR, VARANASI, PATNA, AHMEDABAD, Singrauli, JAMNAGAR, BHOPAL, INDORE, BILASPUR, KOLKATA, SURAT, NAGPUR, RAIPUR, NASHIK, JALGAON, BHANDARA, Buldhana, BHUBANESWAR, MUMBAI, CHANDRAPUR, Parli, KARIMNAGAR, WARANGAL, KALABURGI, HYDERABAD, Vishakhapatnam, Hubli, VIJAYAWADA, Hassan, Udupi, Shivamogga, Tumakuru, Mysuru, Bengaluru, THRISSUR

Presence in Cities: 76

Resonance Eduventures Ltd. Network
- Resonance Corporate/Head Office : 1
- Study Centers / Network Partners : 42
- School Integrated Program (ICCPs) : 4

Total 47

ResoBASE Network
- ResBASE Head Office : 1
- BASE Study Centers (BSC) : 17
- BASE Integrated Program (ICCPs): 11

Total 29

The map is only indicative and not to scale.

Above information is updated till 24.08.2022.

Resonance Eduventures Limited

Registered & Corporate Office: CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Rajasthan) - 324005

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