

ACADEMIC SESSION 2025-28

Name :

Application No.:

RNTSE : 2025

Resonance Nashik Talent Search Exam

QUESTION PAPER

For Students of Class 9th Std.

Exam Date : 6th Oct 2024

Duration : 90 Min.

Max. Marks: 210



Instructions :

- 1) Paper contains four sections (I) Physics (II) Chemistry (III) Maths (IV) Biology.
- 2) Total number of questions 70. (Physics-15, Chemistry-15, Maths-25, Biology-15)
- 3) Single correct option type : out of four options given, only one option will be correct.
- 4) All questions are compulsory.
- 5) Each question carry +3 marks for correct option marked and -1, if incorrect option is marked. Zero mark if not attempted.
- 6) Use black / blue ball pen for filling OMR.
- 7) You must fill your enrollment number in the given appropriate box in the OMR.



JEE Advanced 2024 Results @ Nashik



ANIRUDH MAHAPATRA

AIR 325



RUSHIKESH MUSALE AIR 2649



SMERA PANDA

AIR 1484



SIDDHI BORASE AIR 2688



MANDAR DESHMUKH

AIR 279

PRATHMESH MAHAJAN

AIR 2748



SOHAM DOKHALE AIR 665

AAYUSH VANMALI

AIR 2937



PRATHMESH THORAT

SHAUNAK DAHIBATE

AIR 4472

AIR 1874



PRANAV PAWAR

AIR 2091



HARSHVARDHAN **AIR** 5379[°]

NEET 2024 Results @ Nashik



ANANDITA BASTE

627 **720**



660 **720**



OMKAR GUNJAL 621 **720**



658 **720**



MADHAVI DEORE 619 **720**



SHIVAM THAKUR

615 720



ARJUN BACHHAV 656 **720**

VEDANT NIKAM

611 720





KANISHK AGARWAL 610 **720**

MHT-CET 2024 Results @ Nashik



ANIRUDH MAHAPATRA 99.9919 %ile



SHAUNAK DAHIBATE 99.7223 %ile



MANDAR DESHMUKH 99.9792 %ile



PALAK YEOLE 99.6733 %ile



PRANAV PAWAR 99.9564 %ile



MALHAR PATWARDHAN 99.6323 %ile



SOHAM DOKHALE 99.9333 %ile



RUSHIKESH MUSALE 99.6201 %ile



PARTH KITTE 99.8931 %ile



99.5928 %ile



VEDANT NIKAM 99.8642 %ile



JAYVARDHAN THORAT 99.5515 %ile

22* Resonites Secured 99%+ 43* Resonites Secured 97%+ 32* Resonites Secured 98%+ 59* Resonites Secured 95%+

Resonance[®] जैसा कोई नहीं !









Section-I (Physics)

- The distance between two places A and B on road is 70 kilometers. A car starts from A and the other from B. If they travel in the same direction, they will meet after 7 hours. If they travel towards each other they will meet after 1 hour, then find their speed of car A

 (A) 40km /hr
 (B) 50 km/hr
 (C) 60km/hr
 (D) 20km/hr
- 2. Three blocks are placed on horizontal smooth surface having mass 4kg, 3kg and 2kg, Two forces F_1 and F_2 are applied on the blocks as shown. Find normal force by 4 kg on 3 kg block if $F_1 = 12$ N and $F_2 = 48$ N



3. In the diagram shown below, pulleys are massless and it can rotate freely about its axle. Mass of A is 3 Kg and it is found that if released from rest blocks doesn't move. The system is in vertical plane and upper pulley is attached to fixed support. Then mass of block B is



- Bus cover a distance 216 km at a uniform speed. When it reach half way rain starts so that bus has to reduced its speed by 12 km/hr and it becomes late by 1hr 30min then its usual speed of travel is –

 (A) 30 km/h
 (B) 36 km/h
 (C) 48 km/h
 (D) 40 km/h
- A man is climbing up on a stair then work done by normal force on the man and work done by earth gravity on man will be respectively.
 (A) +Ve & -Ve
 (B) Zero, -Ve
 (C) Zero, +Ve
 (D) +Ve, Zero



Reg. &Corp Office: CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) – 324005

Website:<u>www.resonance.ac.in</u> | E-mail:contact@resonance.ac.in

8390890444,8390870444 | CIN: U80302RJ2007PLC024029

6. Two blocks A and B are attached to two different vertical spring as shown. If $k_2 = 2k_1$ and $m_A = m_B$. Blocks are in equilibrium. Then consider the following statements



I. Elongation in 1st spring (k_1) is double to that of second (k_2)

- II. Potential energy stored in first spring is same to that of 2nd spring
- III. Potential energy stored in 1st spring is double to that of 2nd spring.
- (A) Only I correct

(C) I & II correct

(B) Only II correct (D) I & III correct

- 7. A biker is moving on circular road whose speed is increasing at rate 2 m/s^2 . At an instant its speed is 4 m/s and radius of circular path is 4m then acceleration at the instant will be (A) 2 m/s^2 (B) 4 m/s^2 (C) Les than 2 m/s^2 (D) More than 4 m/s^2
- 8. A particle is dropped from a tower. It is found that it travels 35 m in the last second of its journey. The height of the tower is.
 (A) 80 (B) 90 (C) 100 (D) 125
- 9. A source of sound produces waves of wavelength 0.80m in air. The same source of sound produces waves of wavelength 4.0m in water. If the velocity of sound in air = 332 m/s. Find the velocity of sound in water.
 (A) 1500 m/s
 (B) 1450m/s
 (C) 1660 m/s
 (D) None of these
- 10. A 750W motor drives a pump which lifts 300 litres of water per minute to a height of 6 metres. The efficiency of the motor is nearly (take acceleration due to gravity $g=10m/s^2$ (A) 30% (B) 40% (C) 50% (D) 20%
- 11. A body of mass 10 kg is kept at a height 10m from the ground, when it is released it strike ground with Kinetic energy 450 J. What will be work done by air drag and buoyancy ?
 (A) -1000 J
 (B) 450 J
 (C) -550 J
 (D) 550 J
- 12. Three persons A, B, C participate in a running race for 1 km distance. When A and B run, A wins by 60 seconds; when A, C run, A wins by 375 metres. When B and C run, B wins by 30 seconds. Find the time taken by B to run the 1 km distance
 (A) 210 sec
 (B) 230 sec
 (C) 190 sec
 (D) 240 sec



13.	A train travels 360km at unifo would have taken 1hr less for (A) 40km/hr (B) 45 km/2	orm speed. If the speed the same journey. Find hr (C) 50k m/hr	had been 5km/hr more, it d speed of the train (D) 55km/hr		
14.	A bus moving along a straight within 4s after applying the bit this time (Assume the retarda (A) 20 (B) 33	t highway with speed of rakes. The distance tra tion is uniform) is (in n (C) 25	f 72 km/h is brought to halt velled by the bus during n) (D) 40		
15.	A stone is dropped from a point the time taken by the stone to (A) 0.5 s (B) 0.20 s	nt 0.4m above the top o pass the span of the v (C) 0.14 s	of a 0.5m high window. Find vindow. (D) 0.07 s		
	Sect	tion-II (Chemistry)			
16.	Which of the following liquids (A)Benzene and water (C)Chlorofom and water	can be separated by di (B) Acetone and (D) Water and to	istillation technique ? toluene oluene		
17.	Which of the following are exa respectively ? (A)Milk, cheese (C)Ink , cream	amples of emulsion and (B)Eggyolk , ant (D)Mud , honey	sol colloidal solutions		
18.	Potash Alum is a (A) colloid (B) double s	salt (C) sugar	(D) rock		
19.	The haemoglobin from the red corpuscles of most mammals contains approximately 0.33% of iron by weight. The molecular weight of haemoglobin is 67,200. The number of iron atoms in each molecule of haemoglobin is (atomic weight of iron =56) (1) 2				
20.	During the fractional distillation of air which of the following liquids will be distilled out first and last respectively, if there boiling points are as follows. Oxygen : -183° C Argon : -186° C Nitrogen : -186° C (A) N ₂ , O ₂ (B)O ₂ , Ar (C) Ar, N ₂ (D)All three will be distilled out simultanously				
21.	German silver is solid - solid s (A) Cu, Sn, Zn (B) Cu, Zn,	solution of which of the Ni (C) Cu, Ag	following elements? (D) Fe, Ag, Cr		
22.	Which among the following m (A) Charcoal, lead, coke (C) Bucky balls, graphite, diam	olecules are allotropes (B) Galena, glas mond (D) Charcoal, we	of carbon? sy carbon, graphite ood, soot		

23. Calculate the mass of Lithium that contains same number of atoms as present in 8g of Magnesium. Atomic masses of lithium and magnesium are 7 and 24 respectively.

(A) 8g (B) 3g (C) 7g (D) 2.3g

24. Consider a beaker with a partition made up of sieved glass plate such that the beaker now contains two spaces - `A' and `B'. The beaker contains distilled water to which sugar was added in space A. As you can see in the image, some molecules of sugar have moved to the region B. Which of the following is the correct term for describing this process?



(A) Osmosis. (B) Diffusion (C) Plasmolysis (D) . Imbibition25. A compound used for cleaning purpose having hydrophobic and hydrophilic ends is

- (A) Sodium or potassium salt of saturated or unsaturated fatty acids.
- (B) Triglycerides of saturated or unsaturated fatty acids.
- (C) Monoesters of saturated or unsaturated fatty acids
- (D) Triglycerides of unsaturated fatty acids.
- 26. Devarsh was experimenting with an electrolytic cell. He took an aqueous solution of sodium chloride and added some zinc sulphate into it. When he dipped platinum electrodes in the electrolyte and passed electric current through the solution the species discharged at cathode and anode respectively were
 - (A) Zinc and Chlorine
- (B) Sodium and Oxygen
- (C) Hydrogen and Chlorine
- (D) Zinc and Oxygen
- 27. Which of the following is chemical formula of green vitriol
 (A) CuSO₄ 5H₂O
 (B) Na₂CO₃
 (C) FeSO₄ 7H₂O
 (D) CaSO₄2H₂O
- 28. What will be the temperature in °C and °F respectively if the temperature in Kelvin is 72 ?
 (A)-345.15 , -589.27 (B)285.23 , 408.15 (C)-113 , 184.34 (D)450.12 , 340.25
- 29. 40% by weight solution will contain how much mass of the solute in 1L solution, density of the solution is 1.2 g/mL?

(A) 480 g (B)48 g (C)38 g (D)380 g



30. In solution of copper sulphate, if iron rod is inserted for some times then. I. Bluish color of copper sulphate becomes more intense (i.e. more bluish) II. Bluish color of copper sulphate fades III. Iron rod turns out bluish IV. Iron rod turns out brownish. Correct statement(s) is/are (A) Only III (B) Only II & III (C) Only II & IV (D) I & IV Section-III (Math) 31. Find the distance between points A (-4, 7) and B (5, 19). (D) $\sqrt{676}$ (A) √145 (B) 15 (C) 27 32. Find digit at unit place of $y = (132)^{74} - (3498)^{49}$ (A) 0 (B) 2 (D) 6 (C) 4 33. The coefficient of x^2 in the product of (2x - 5)(x + 3)(x + 4) is : (A) 19 (B) -60 (C) 60 (D) 9 34. Find sum of all coefficients of expression f(x) = (x-2)(x+3)(x-4)(x-5)(x+6)(B) -720 (C) -336 (A) 316 35. Five real numbers $x_1, x_2, x_3, x_4 \& x_5$ are such that $\sqrt{(x_1-1)} + 2\sqrt{(x_2-4)} + 3\sqrt{(x_3-9)} + 4\sqrt{(x_4-16)} + 5\sqrt{(x_5-25)} = \frac{x_1+x_2+x_3+x_4+x_5}{2}$ Then find value of $x_1 + x_2 + x_3 + x_4 + x_5$ (C) 55 (D) not uniquely defined (A) 210 (B) 110 If x > y > 0 and $\frac{x+y}{x-y} = \sqrt{3}$ then $\left(\frac{x^2+y^2}{xy}\right)$ is 36. (A) 5 (B) 4 (C) 1 (D) 6 37. Anirudh Mahapatra, Soham Dhokhale and Pranav Pawar students of *Resonance Nashik center* went to a book shop to buy note-books and pens. Anirudh Mahapatra bought five note-books and two pens and paid Rs 237 however Soham Dhokhale bought two note-books and five pens and paid 120 Rs How much amount Pranav would have paid if he bought one notebook and one pen. (A) 17 (B) 45 (C) 51 (D) 56 38. The sum of the length and breadth of a rectangle is 6 cm. A square is constructed whose side is equal to the diagonal of the rectangle. If the ratio of the areas of the square and the rectangle is 5:2, then the area of the square (in cm^2) is _

(A) 20 (B) 25 (C) 30 (D) 40



39.	If the point P (6n	n - 8,3m + 10) l	lie on the Y axis th	en distance of the	e point P from	
	Q (15,-6) will be					
	(A)17	(B) 20	(C) 23	(D) 25		

40. The length of longest pole that can be kept in room of size 12m×15m×16m is

(A) 20 m	(B) 25 m	(C) 29 m	(D) 23 m
----------	----------	----------	----------

41. If $x^2 - x - 12 = 0$ then find value of y = (x - 1)(x - 3)(x + 4)(A) zero (B) 12 (C)-12 (D) 24

42. The average marks of student in his ten papers are 73. If the highest and the lowest scores are not considered, the average becomes75. If his highest score is 93, then the lowest score is:
(A) 55 (B) 60 (C) 37 (D) 42

43. There are three identical rectangles A,B and C overlapping as shown. Dimension of each rectangle is 22×9 as shown. Area of overlapping region of A & B and B & C are respectively 36 and 16 and both are square shape. Find the perimeter of outer boundary of the figure.





- 44. If a,b,c and d are real numbers such that a-2024=b+2022=c-2025=d+2023 then (A) greatest among a,b,c and d is c
 - (B) least among a,b,c and d is b
 - (C) both options A and B are correct
 - (D) both options A and B are wrong
- 45. In the diagram shown below, BA and BC are produced to meet, produced line of CD and AD at E and F respectively as shown. If $AD \perp$ to CD and $\angle ABC = \theta = 40^{\circ}$ then find $\angle AED + \angle CFD$



46.	If $x^2 + 6x + 1 = 0$ and $\frac{x^4 + kx^2 + 1}{3x^3 + kx^2 + 3x} = 2$ then the value of k is				
	(A) 65	(B) 68	(C) 70	(D) 72	
47.	If $f(x) = x^4 + ax^3 $	$bx^2 + cx + d$ such t	that $f(1) = 6$, $f(2) = 2$	12, f(3) = 18, f(4) = 2	24 find
	(A) 44	(B) 54	(C) 64	(D) 30	
48.	If (x+ 1) is a factor of p is	of x ⁴ + (p – 3) x ³ –	(3p – 5) x ² + (2p –	9) $x + 6$ then the x	value

- (A) 4 (B) 2 (C) -2 (D) +3
- 49. In the diagram M,N,P and T are points on circle whose center is at C as shown. Chord PN and MT produced so that they meet at S. If $\angle MCN = 128^{\circ}, \angle CMT = 50^{\circ} \angle NST = 30^{\circ}$ then (*y-x*)



50. If
$$\sqrt{7-3\sqrt{5}} = \frac{a+b\sqrt{5}}{\sqrt{2}}$$
 where *a* and *b* are rational number then $a^2+b^2 = ?$

(A) 8

- (A) 10 (B) 9 (C) 5 (D) 14
- 51. Resonance Nashik usually arrange outing for students to energise and enhance efficiency in academics learning. Trekking to brahamgiri was planned, total 120 students went for the trekking. Students are in group of five. And they decided to sit together in van. This implies students of one group sit in same van. each van has capacity to sit total 13 person including driver. At entry there is charge sheet mentioning 10 rs per person and 50 rs for each van. For example if a van having 13 person including driver they have to take ticket of worth (13×10 + 50) rs = 180 rs. Then how much money the team has to pay for entry ticket. Assuming minimum possible number of van was booked but according to above group sitting plan.
 (A) Rs 1920 (B) Rs 2150 (C) Rs 1820 (D) Rs 1800



52. In the Δ PQR, S and T are the midpoint of sides PR and PQ respectively. If area of Δ PQR is 96 cm², then find area of Δ TSQ



 Kesonance®
 Website:www.resonance.ac.in | E-mail:contact@resonance.ac.in

 Educating for better tomorrow
 8390890444,8390870444 | CIN: U80302RJ2007PLC024029

RNTSE24-25 PAGE-8

- 58. Phylogenetic system of classification is based on(A) Morphological features(B) Chemical cons
 - (C) Floral characters

- (B) Chemical constituents
- (D) Evolutionary relationships
- 59.Mitochondria and chloroplasts are semi-autonomous as they possess(A) DNA(B) DNA + RNA(C) DNA + ribosomes(D) proteins
- 60. Bryophytes are called amphibians of plant kingdom because.
 - (A) They play an important role during succession on bare rocks
 - (B) They lack roots, stems or leaves
 - (C) They are dependent on water for sexual reproduction
 - (D) They are more differentiated than that of algae

61. Assertion : The growth of plants occurs only in certain specific regions. Reason : The meristematic tissue is found all over the plant

- (A) Both A and R are true and R is correct explanation of the A
- (B) Both A and R are true but R is not the correct explanation of the A
- (C) A is true, but R is false
- (D) A is false, but R is true
- 62. Pick the correct statement

i. Bionomial nomenclature helps you to identify the relationship between animals

ii. the rules for bionomial nomenclature are set by IUCN generic epithet and specific epithet

iii. Binomial nomenclature has two parts namely generic epithet and specific epithet

iv. The generic epithet should start with capital latter and specific epithet should start with small later

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

63. Match the following column I and column II choose correct, combination from the option given below.

Column I		Column II	
a.	Monera	1.	Mushroom
b.	Protista	2.	Clamydomonas
с.	Fungi	3.	Vibrio
d.	Plantae	4.	Euglena
		5.	Aspergillus
		6.	Paramecium
		7.	Spirillum

(A) a-(3, 4), b-(6,7), c-(1,5), d-(2) (C) a-(4, 7), b-(3,6), c-(1,2), d-(5) (B) a-(3, 4), b-(6, 7), c-(1, 2), d-(5) (D) a-(3, 7), b-(4, 6), c-(1, 5), d-(2)

- 64. Dark reaction of photosynthesis takes place in
 - (B) stroma of chloroplast
 - (C) Thylakoid membrane

(A) mitochondrial matrix

- (D) stromal lamellae
- 65. Identify the given figure and select the correct option about it



- (A) At the corners due to a deposition of cellulose. Hemicellulose and pectin
- (B) They are usually dead and without protoplasts
- (C) It may be spherical, oval, round, polygonal
- (D) They performs various functions like photosynthesis, storage, secretion
- 66. Which of the following statement is incorrect about non striated muscles
 - (A) Each muscle cell is uninucleated
 - (B) The wall of internal organs such as the blood vessels, stomach & intestine
 - (C) muscles are found in the urinary bladder & iris of eye etc
 - (D) muscles fibres or cells are multinucleated and unbranched
- 67. Find the odd one out (A) basophil (B) monocytes (C) Neutrophils (D) Eosinophils
- 68. Examine the figures a, b, c and d. In which one of the four options all the items, A, B, C, and D are correct?



(a)

(b)

(c)

(d)

	a	b	С	d
A	Adiantum	Marsilea	Selaginella	Fern
В	Moss	Fern	Equisetum	Ginkgo
C	Chara	Fern	Lycopodium	Marsilea
D	Pteris	Selaginella	Equisetum	lycopodium

Website:www.resonance.ac.in | E-mail:contact@resonance.ac.in

Reg. &Corp Office: CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) – 324005



8390890444,8390870444 | CIN: U80302RJ2007PLC024029

- 69. Read the following statement and select the correct one(i) The companion cells are closely associated with sieve tube elements/provide mechanical support
 - (ii) xylem parenchyma are non living fibers with thick wall
 - (iii) The sieve tubes are devoid of nuclei, but still they remain living
 - (iv) simple permanent tissue consist of more than one type of cells which work together as a unit
 - (A) i, ii and iii (B) ii, and iv only (C) i and iii only (D) i, ii, iii and iv

70. Tissues are

- (A) Groups of cells which are similar in origin and function
- (B) Groups of organs which are similar in origin and function
- (C) Cells which are similar in function but not in origin
- (D) Groups of cells which are not similar in origin and function

Reg. &Corp Office: CG Tower, A-46 & 52, IPIA, Near City Mall, Jhalawar Road, Kota (Raj.) – 324005

SPACE FOR ROUGH WORK

Top Rankers in JEE @ Nashik Centre

YEAR 2024



ANIRUDH MAHAPATRA

YEAR 2020







ABHISHEK GUPTA IIT-DELHI / AIR - 166



(RANK-1 GIRLS)

YEAR 2023



ARYA JOSHI IIT-BOMBAY / AIR - 536

YEAR 2024



SUYASH MORE MARKS - 99.86%ile MHT-CET

Top Rankers in NEET @ Nashik Centre



ADITYA LUGADE 700/720 NEET 2024 99.99%ile



JAYANT KEM MUMBAI-2021



PRAJWAL LTMC MUMBAI-2020



DEEPAK KEM MUMBAI-2019





KANISHK BJ PUNE-2017

Resonance[®]



MOHINI KEM MUMBAI-2017

नहीं !

जैसा कोई



NAIR MUMBAI-2017 AIIMS AIR-1347

KOTA 2023 RESULTS

JEE (Main) 2023 RESULT



JEE (Adv.) 2023 RESULT

8 STUDENTS IN TOP-50 AIRs | 15 STUDENTS IN TOP-100 AIRs



NEET (UG) 2023 RESULT



जैसा कोई नहीं !

Resonance®