

Academic Session: 2021-22



Please read the next & last page of this booklet for the instructions.

Resonance Eduventures Limited

IMPORTANT INSTRUCTIONS

GENERAL INSTRUCTIONS

- 1. This booklet is your Question Paper.
- 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.
- 3. Write your Name & Application Form Number in the space provided in the first page of this booklet.
- 4. 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.
- 5. No query related to question paper of any type is to be put to the invigilator.

INSTRUCTIONS FOR OPTICAL RESPONSE SHEET (ORS)

- > Darken the appropriate bubbles on the original by applying sufficient pressure.
- > The original is machine-gradable and will be collected by the invigilator at the end of the examination.
- > Do not tamper with or mutilate the ORS.
- Write your name, Application form number and the name of the examination centre and sign with pen in the space provided for this purpose on the original. Do not write any of these details anywhere else. Darken the appropriate bubble under each digit of your roll number.
- > Before answering the paper, fill up the required details in the blank space provided in the Objective Response Sheet (ORS).
- Do not forget to mention your paper code and Application Form Number neatly and clearly in the blank space provided in the Objective Response Sheet (ORS) / Answer Sheet.
- > Use a BLACK BALL POINT to darken the bubbles in the upper sheet.
- > Darken the bubble **COMPLETELY**.
- > Darken the bubble **ONLY** if you are sure of the answer.
- > The correct way of darkening a bubble is as shown here :
- > There is **NO** way to erase or "un-darkened bubble.
- The marking scheme given at the beginning of each section gives details of how darkened and not darkened bubbles are evaluated.

Marks distribution of questions is as follows.

Reso NET 2021-22

			Marks to be awarded					
S.No.	Subject	Nature of Questions	No. of Questions	Correct	Wrong	Total		
1 to 25	PART-I (Maths)	Single Choice Questions (SCQ)	25	3	0	75		
26 to 35	PART-II (Physics)	Single Choice Questions (SCQ)	10	3	0	30		
36 to 45	PART-III (Chemistry)	Single Choice Questions (SCQ)	10	3	0	30		
46 to 55	PART-IV (Biology)	Single Choice Questions (SCQ)	10	3	0	30		
56 to 70	PART-V (Mental Ability)	Single Choice Questions (SCQ)	15	3	0	45		
		Total	70			210		

Zero marks '0' If none of the options is chosen (i.e. the question is unanswered).



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



- 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



3. Choose the rational number which does not lie 8.



- 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 $\frac{3x+6}{8} \frac{11x-8}{24} + \frac{x}{3} = \frac{3x}{4} \frac{x+7}{24}$, then the value of x is (A) x = 3 (B) x = 2(C) x = 1 (D) x = 46. If $8^{x-1} = 2^{x+3}$, value of x will be (A) 2 (B) 4 (C) 1 (D) 3

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

7.







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



(Space For Rough Work)

9.



- 10. A man born in the first half of the 19th century was x years old in the year x². 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 m² + n² equals : (A) 25 (B) 37 (C) 29 (D) 41

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

then the value of N is :

(A)
$$2\sqrt{2} - 1$$
 (B) 2
(C) 1 (D) $\sqrt{5} - \sqrt{2}$

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

If $\frac{p}{a} + \frac{q}{b} + \frac{r}{c} = 1$ and $\frac{a}{p} + \frac{b}{q} + \frac{c}{r} = 0$ then the value of $\frac{p^2}{a^2} + \frac{q^2}{b^2} + \frac{r^2}{c^2}$ is : (A) 0 (B) -11 (C) 9 (D) 1 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) _{√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)
$$\frac{5}{2}$$
 (B) $\frac{19}{5}$

(C)
$$\frac{4115}{2013}$$
 (D) $\frac{1569}{784}$

19. In the adjoining figure AB = AC and DEF is an equilateral triangle . Then



(Space For Rough Work)

17.



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

$\left(1-\frac{1}{2^2}\right)\left(1-\frac{1}{3^2}\right)\left(1-\frac{1}{4^2}\right)\dots\left(1-\frac{1}{2007^2}\right)$ (A) $\frac{2008}{2008}$ (B) $\frac{1004}{2007}$

(C) N

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

- The value of x which satisfy $\frac{6x+5}{4x+7} = \frac{3x+5}{2x+6}$ is : 24. (A)-1 (B) 2 (D)-2 (C) 1
- 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 : $(A) N \times s$ (B) N/s

(D) $\frac{\text{kg xs}}{\text{m}}$

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.

If a force is conservative :

(B) it will be central

(D) none of these

(A) work is path independent

(C) potential energy remains constant

A body goes from A to B with a velocity of 20 m/s

27.

28.

- 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 :

u ²	u
(A) $\overline{2g}$	(B) <u>2</u> g
(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) / .5 II
(C) 6 m	(D) 4.5 m

Weightlessness experienced while orbitting in 33. 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) (w) are dropped from a h If the time taken by the ground is T_i and T_w resp (A) $T_i < T_w$ (C) $T_i > T_w$) and the other of wood eight at the same time. e blocks to reach the ectively, then : (B) $T_i = T_w$ (D) $T_i = 1/2 T_w$	41. 42.	Rate of evaporation dep (A) temperature (C) humidity Air is regarded as a - (A) compound	ends upon - (B) surface area (D) All of these (B) mixture			
35. 36.	When a space ship is earth's radius from the or gravitational acceleration (A) 19.6 ms ⁻² (C) 4.9 m/s ² What happens to the vor solution when small amount in it 2	at a distance of two centre of the earth, the n is : (B) 9.8 ms ⁻² (D) 2.45 ms ⁻² blume of the aqueous unt of sugar is dissolved	43. 44.	 Colloids which is not possible (A) Gas in liquid (B) Liquid ir (C) Solid in solid (D Gas in G Which of the following provides an exa true solution ? (A) Blood (B) Milk (C) Starch solution (D) Sugar s 				
	 (A) Volume increases (B) Volume decreases (C) Volume first increases then decreases. (D) No change in volume. 			 45. Which of the following will show Tyndall er (A) Starch solution (B) Sodium chloride solution (C) Copper sulphate solution 				
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) 	46.	(D) Sugar solution The endomembrane system of the cell includes (A) mitochondria. (B) plastids.					
38. 39.	On changing which of th of matter will change ? (A) Temperature (C) (A) & (B) both Melting & freezing point	e following, the states (B) Pressure (D) None of these of water -	47.	(C) nucleus.The membrane bound s apparatus are called(A) plastids.(C) cisternae.	 (D) ER tructures of the golgi (B) vacuoles. (D) ribosomes 			
	(A) are same.(B) have large difference between them.(C) have close difference between them.(D) None of these		48.	The fluid content of the v (A) water. (C) cytoplasm.	vacuoles is called (B) cell sap. (D) nucleoplasm.			
40.	During evaporation, part into vapours only - (A) from the surface. (B) from the bulk. (C) from both surface ar (D) neither from surface	icles of a liquid change nd bulk. nor from bulk.	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 no with involuntary muscle (A) muscular coats of b (B) muscles of limbs (C) muscles of iris. (D) muscles of urethra.	ot exclusively supplied s lood vessels.	58. 59.	ZGL, XHN, VIQ, TJU, ? (A)RKX (B) RKY (C)RLZ (D) RKZ				
51.	(A) histidine.(C) antibodies.	(B) histamine. (D) troponin		(A) 169 (C) 85	(B) 168 (D) 706			
52.	Protein present in the m known as (A) chondrin (C) cellulase.	natrix of cartilage is (B) chitin. (D) casein.	Directi 60.	 tion : (60) Which sequence of letters when placed at the blanks one after the other will complete the given letter series ? a – b a a – a a – – a b 				
53.	 Plants take up nitrogen (A) free nitrogen. (B) molecular nitrogen. (C) amino acids. (D) nitrates and nitrites. 	in the form of	61.	(A) a a a a (C) b b a a If MERCHANT is NDSB (A) BZMBDQ (C) DBODFS	(B) b a a a (D) a b b a IZOS, then CANCER is (B) BBMBDQ (D) DZOBFQ			
54.	The most common spec maintained for collecting (A) <i>Apis dorasata.</i> (C) <i>Apis indica.</i>	cies of honey bee g honey and wax is (B) <i>Apis florae.</i> (D) <i>Apis mellifera</i>	62.	DRAMA is coded as 37 a will you code ACTOR 3 (A) 56 (C) 57	and STAGE as 52 . How (B) 50 (D) 67			
55.	The practice concerned with the improvement of animals is (A) poultry. (B) animal husbandry. (C) bee keeping. (D) fishery.		63. 64.	If the alphabets were writ which letter will be the t the fourteenth letter from (A) R (C) S How many pairs of letter	ten in the reverse order, fifth letter to the left of n the left. (B) I (D) H rs are there in the word,			
Direct	ion : (56 to 59) Find the	missing terms.		between them in the wo	n have as many letters ord as in alphabet ?			
56.	7,19, 55, 163, _ (B) 329 (A) 387 (B) 329 (C) 527 (D) 487 5, 3, 6, 2, 7, 1, ? (B) 2 (C) 8 (D) 4		65.	 (A) One (B) Three (C) Four (D) More than for Which interchange of signs will make 				
57.				$12 - 3 \times 2 \div 18 + 6 = 9$ (A) ÷, – (C) ×, –	(B) ÷, + (D) +, –			

(Space For Rough Work)



66. Pointing to a person, Rohit said to Neha, "His **69.** 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.

 $\left(v\right)$ 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

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	С	С	В	Α	D	В	С	С	В	С	А	С	С	D
Ques.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	D	С	D	С	В	С	Α	В	С	D	Α	Α	Α	D	D
Ques.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	Α	Α	В	В	D	D	D	С	Α	Α	D	В	D	D	А
Ques.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	D	С	В	С	В	В	Α	D	D	В	D	С	D	В	D
Ques.	61	62	63	64	65	66	67	68	69	70					
Ans.	D	С	A	D	В	В	D	В	В	С					



Resonance[®] Educating for better tomorrow

Reso NET_SAMPLE TEST PAPER _CLASS-X/WINNER_PAGE # 16