

## ADMISSION CUM SCHOLARSHIP TEST

## SAMPLE TEST PAPER

(For Students Going to Class 10<sup>th</sup> IN 2025)

## **COURSE OFFERED** : CATAPULT

## Time : 2 hours

Maximum Marks: 240

.									
TOR	(A)	General :							
NVIGILA	1.	This Question paper contains <b>FIVE</b> Parts (Physics, Chemistry, Mathematics, Biology & Mental Ability) containing 60 questions in all.							
LHE II	2.	This Question Paper contains 11 pages, other than the OMR.							
FROM	3.	The Question Paper has blank spaces at the bottom of each page for rough work.No additional sheets will be provided for rough work.							
CTIONS	4.	Blank papers, clip boards, log tables, slide rule, calculators, cellular phones, pagers and electronic gadgets, in any form, are <b>NOT</b> allowed.							
STRU	5.	This booklet also contains the <b>OMR</b> answer sheet (i.e., A machine gradable Response Sheet).							
	(B)	Answering on the OMR:	$\checkmark$						
AWA	6.	Each question will have <b>4 choices</b> in both the Sections, out of which <b>only one choice is correct</b> .							
LET,	7.	Darken the bubble with Ball Pen (Blue or Black) ONLY.							
оок	(C)	Filling – in Name and Registration No.	S						
N THIS B	8.	On the <b>OMR sheet</b> , write your Name and Registration No. in ink. Also, put your signature in the appropriate box in ink.							
<b>TSO</b>	(D)	Marking Scheme:							
HE SEA	9.	(a) For each question, you will be awarded +4 marks if you have darkened only one bubble corresponding to the right answer.							
KΤ		(b) In case you have not darkened any bubble, you will be awarded 0 mark for that question.							
REA		(c) In all other cases, you will be awarded –1 mark.							
Name :									
	Registration No.:								

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[2]				SAMPLE PAPER (Catapult )
		PART-A	: PHYSICS	
1.	Slope of a velocity	– time graph gives		
	(A) the distance			
	(B) the displaceme	nt		
	(C) the acceleration	า		
	(D) the speed			
2.	According to Newto	on's third law of motion	, action and reaction	
	(A) always act on t	he same body.		
	(B) always act on d	ifferent bodies in oppo	site directions.	
	(C) have same mag	gnitude and directions.		
	(D) act on either bo	ody at normal to each c	other.	
3.	Law of gravitation g	gives the gravitational f	orce between	
	(A) the earth and a	point mass only		
	(B) the earth and S	un only		
	(C) any two bodies	having some mass		
	(D) two charged bo	dies only		
4.	When a body falls f	reely towards the eart	h, then its total energy	
	(A) increases		(B) decreases	
	(C) remains consta	int	(D) first increases	and then decreases
5.	Which kind of sour	id is produced by Earth	nquake before the main	shock wave begins ?
	(A) ultrasound	(B) infrasound	(C) audible sound	(D) none of the above
6.	A car is moving alo P and Q separated Velocity of the car,	ng a straight road with by a certain distance exactly midway betwe	a uniform acceleration. I with velocity of 30 kmph en P and Q, is	t passes through two points and 40 kmph respectively.
	(A) 33.3 kmph	(B) 20 kmph	(C) 25 kmph	(D) 35.35 kmph
		Space fo	or rough work	
		-		

SAMP	LE PAPER (Catapult)			[3]			
7.	If the displacemer	nt-time graph for the t	wo particles A and B are s	straight lines inclined at angles			
	of 30° and 60° with the time axis, then ratio of the velocities $v_A$ : $v_B$ will be						
		Ŷ					
		l l					
		ame	В				
		splac	60°				
		ä	$X \rightarrow X$				
	$(\Lambda)$ 1 · O	(P) 1 · 2	$\frac{(C)}{2} \cdot 1$	(D) 2· 1			
	(A) 1.2	(B) 1.3	(C) √3 . I				
8.	A cricket ball of m find the change ir	ass 100 g moving wi n momentum of ball.	th a speed of 30 m/s is br	ought to rest by a player, then			
	(A) –3.0 kg m/s	(B) -4.0 kg m/s	(C) -5.0 kg m/s	(D) -6.0 kg m/s			
9.	Two forces of 6N floor. What is the	and 3N are acting of force exerted on 2 k	on the two blocks of 2 kg g block by 1 kg block ?	and 1 kg kept on frictionless			
		6N	<b>→</b>				
			<sup>°</sup> 1kg				
	(Λ) 1 N	(B) 2 N	(C) A N	(D) 5N			
10	(A) = IN If the Earth is $1/4t$	(D) ZN	(C) 4 N	(D) SN			
10.	(A) $1/4^{\text{th}}$ of process	of its present distan	$(\mathbf{P})$ 1/6th of proc	allon of the year would be			
	(A) $1/4$ of preser	n year	(D) 1/16th of pro	sont voor			
11	If the linear mome	n year antum of a body is in	creased by 50% its KE	vill increase by			
		(R) 100%	(C) 125%	(D) 150%			
12	(A) 50 %		(0) 12070	(D) 150%			
12.	change in its frequ	uency?	edium is reduced by 50 %	s, then what is the percentage			
	(A) 25 %	(B) 50 %	(C) 75 %	(D) no change			
		Spac	ce for rough work				

[4]					SAMPLE PAPER (Catapult )			
	PART-B : CHEMISTRY							
13.	The density of wate	er is maximum at						
	(A) 0°C	(B) 277 K	(C)	100°C	(D) 283 K			
14.	Addition of impuritie	s to water						
	(A) decreases the f	reezing point of water						
	(B) increases the bo	piling point of water						
	(C) does not affect t	he freezing or boiling	point of	water				
	(D) both (a) and (b)							
15.	Which of the followi	ng would be describe	d as imp	oure?				
	(A) Crystallized salt		(B)	Salt solution				
	(C) Rock salt		(D)	All of the abov	ve			
16.	Which one of the pl	nrases would be incor	rect to u	ise?				
	(A) a mole of an ele	ment	(B)	a mole of a co	ompound			
	(C) an atom of an e	ement	(D)	an atom of co	ompound.			
17.	The mass number A	A, atomic number Z ar	nd numb	er of neutrons	n are related as			
	(A) n = A - Z	(B) $n = A + Z$	(C)	$n = A \times Z$	(D) none of these			
18.	As the solid melts to	o form liquid,						
	(A) interparticle for	es of attraction decre	ases					
	(B) the kinetic energ	gy of the particles incr	eases					
	(C) compressibility	increases						
	(D) all of these							
		Space fo	or rough v	work				

SAMP	E PAPER (Catapult ) [5]							
19.	<b>19.</b> A mixture of sulphur and iron filings is heated strongly to obtain a residue. Which of the following is not a characteristic property of the residue?							
	(A) It can be separated into sulphur and iron filings by physical methods.							
	(B) Its composition does not change from one part to another.							
	(C) Its properties are entirely different from those of sulphur and iron filings.							
	(D) Its appearance is different from those of sulphur and iron filings.							
20.	The law of multiple proportions is illustrated by the pair of compounds							
	(A) sodium chloride and sodium bromide							
	(B) water and heavy water							
	(C) sulphur dioxide and sulphur trioxide							
	(D) magnesium hydroxide and magnesium oxide.							
21.	The present atomic weight scale is based on							
	(A) C <sup>12</sup> (B) O <sup>16</sup> (C) H <sup>1</sup> (D) C <sup>13</sup>							
22.	When we put some crystals of potassium permanganate in a beaker containing water, we observe that after some time whole water has turned pink. This is due to							
	(A) boiling							
	(B) melting of potassium permanganate crystals							
	(C) sublimation of crystals							
	(D) diffusion							
	Space for rough work							
	Space for rough work							

[6]	SAMPLE PAPER (Catapult )
23.	Water was taken in four beakers labelled as I to IV. To these beakers, the following substances were added.
	Beaker (I) Common salt
	Beaker (II) Alum
	Beaker (III) Potassium nitrate
	Beaker (IV) A few drops of barium chloride and a few drops of dilute $H_2SO_4$ .
	After sometimes, the contents of the beakers were filtered. The contents of which beaker will leave residue on the filter paper.
	(A) Beaker (I) (B) Beaker (II) (C) Beaker (III) (D) Beaker (IV)
24.	In compound A, 1.00 g nitrogen combines with 0.57 g oxygen. In compound B, 2.00 g nitrogen combines with 2.24 g oxygen. In compound C, 3.00 g nitrogen combines with 5.11 g oxygen. These results obey the following law
	(A) law of constant proportion (B) law of multiple proportion
	(C) law of reciprocal proportion (D) law of partial pressure.
	PART-C : MATHEMATICS
25.	If $x = 2 + \sqrt{3}$ , then $\left( \frac{x + \frac{1}{x}}{x} \right)$ equals to
	(A) $_{-2\sqrt{3}}$ (B) 2 (C) 4 (D) $4 - 2\sqrt{3}$
26.	The expression $(ax^2 + bx + c)$ is exactly divisible by $(2x - 1)$ and $(x + 2)$ , it leaves a remainder 12 when divided by $(x - 2)$ . Find the values of a, b, c.
	(A) $a = -2$ , $b = 3$ , $c = -2$ (B) $a = 2$ , $b = 3$ , $c = -2$ .
	(C) $a = -2$ , $b = 3$ , $c = 2$ . (D) $a = 2$ , $b = -3$ , $c = -2$ .
	Space for rough work
	Space for fough work
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27.	The co-ordinates more than two-th	s of a point lying in the se hird of the square of ordi	econd quadrant with or nate is (– x, 12). Then t	dinate 12 and abscissa three he value of 'x' is equal to					
	(A) 96	(B) 99	(C) – 99	(D) -93					
28.	An equilateral tri	angle ABC is inscribed i	n a circle with centre O	. Then, $\angle$ BOC is equal to					
	A O B C								
	(A) 30°	(B) 60°	(C) 90°	(D) 120º					
29.	The y co-ordinat	e of a point is distance o	f that point from						
	(A) X-axis	(B) Y-axis	(C) Origin	(D) none of these					
30.	The value of 'K' f	or which the system of e	equations has no solution	on :					
	2x - Ky + 3 = 0	and $3x + 2y - 1 = 0$							
	(A) $-\frac{4}{3}$	(B) $\frac{2}{3}$	(C) $-\frac{2}{3}$	(D) $\frac{4}{3}$					
31.	The perimeter of 6050 cm <sup>2</sup> . Then	of a right triangle is 13 the sum of the perpendi	2 cm. and the sum of cular sides is equal to	the squares of its sides is					
	(A) 77 cm	(B) 55 cm	(C) 44 cm	(D) None of these					
32.	Three vertices of fourth vertex is	a parallelogram are (p +	- q, p – q), (2p + q, 2p – q	q) and $(p - q, p + q)$ . Then the					
	(A) (–p, q)	(B) (p, q)	(C) (–q, q)	(D) (–p, p)					
33.	If the length of a	diagonal of a cube is 8,	$\sqrt{3}$ cm , then its surface	area is					
	(A) 512 cm <sup>2</sup>	(B) 384 cm <sup>2</sup>	(C) 192 cm <sup>2</sup>	(D) 768 cm <sup>2</sup>					
		Space f	or rough work						

				SAMPLE PAPER (Catapult
If the volumes of tv	vo cubes are in ratio	8 : 1, then	the ratio of th	neir edges is
(A) 2 : 1	(B) 4:1	(C)	2√2 :1	(D) 8:1
The median of follo	owing series 520, 20	, 340, 190,	35, 800, 1210	0, 50, 80
(A) 1210	(B) 520	(C)	190	(D) none of these
A pair of dice is thr	own once. The prob	ability that	the sum of th	e outcomes is less than 11 is
(A) 29/36	(B) 7/36	(C)	11/12	(D) 1/6
	PART-I	D : BIO	LOGY	
Most cell membrar	nes are composed p	rincipally o	f	
(A) DNA and ATP		(B)	Protein and I	Lipid
(C) Chitin and star	ch	(D)	Nucleotides	and amino acids
The solution in whi	ich a cell will gain wa	ater by osn	nosis is terme	ed as
(A) Isotonic solutio	n	(B)	Hypertonic s	solution
(C) Hypotonic solut	tion	(D)	Both (A) and	d (B).
Girth of stem incre	ases due to			
(A) Apical merister	n	(B) Lateral meristem		
(C) Intercalary mer	tistem	(D)	Vertical meri	istem
Triceps and biceps	are examples of			
(A) Voluntary muse	cle	(B)	Involuntary n	muscle
(C) Sphincter muse	cles	(D)	Smooth mus	scles
What is classificati	on?			
(A) Grouping organ	nisms together on th	ne basis of	the features th	hey have in common.
(B) Grouping organ	nisms together on th	ne basis of	how they resp	pire.
(C) Grouping organ	nisms together on th	e basis of l	how they feed	d.
(D) Grouping orga	nisms together on th	ne basis of	how they surv	vive.
	Spac	e for rough v	vork	
	If the volumes of tw (A) 2 : 1 The median of follo (A) 1210 A pair of dice is thr (A) 29/36 Most cell membrar (A) DNA and ATP (C) Chitin and star The solution in whi (A) Isotonic solutio (C) Hypotonic solutio (C) Hypotonic solutio (C) Hypotonic solutio (C) Intercalary mer Triceps and biceps (A) Voluntary music (C) Sphincter music What is classificati (A) Grouping organ (B) Grouping organ (C) Grouping organ	If the volumes of two cubes are in ratio (A) 2 : 1 (B) 4 : 1 The median of following series 520, 20 (A) 1210 (B) 520 A pair of dice is thrown once. The prob (A) 29/36 (B) 7/36 <b>PART-I</b> Most cell membranes are composed p (A) DNA and ATP (C) Chitin and starch The solution in which a cell will gain w (A) Isotonic solution (C) Hypotonic solution Girth of stem increases due to (A) Apical meristem (C) Intercalary mertistem Triceps and biceps are examples of (A) Voluntary muscle (C) Sphincter muscles What is classification? (A) Grouping organisms together on th (B) Grouping organisms together on th (C) Grouping organisms together on th (D) Grouping organisms together on th	If the volumes of two cubes are in ratio 8 : 1, then (A) 2 : 1 (B) 4 : 1 (C) The median of following series 520, 20, 340, 190, (A) 1210 (B) 520 (C) A pair of dice is thrown once. The probability that (A) 29/36 (B) 7/36 (C) <b>PART-D : BIO</b> Most cell membranes are composed principally of (A) DNA and ATP (B) (C) Chitin and starch (D) The solution in which a cell will gain water by osn (A) Isotonic solution (B) (C) Hypotonic solution (D) Girth of stem increases due to (A) Apical meristem (D) Triceps and biceps are examples of (A) Voluntary muscle (B) (C) Sphincter muscles (D) What is classification? (A) Grouping organisms together on the basis of (B) Grouping organisms together on the basis of (D)	If the volumes of two cubes are in ratio 8 : 1, then the ratio of the (A) 2 : 1 (B) 4 : 1 (C) $2\sqrt{2}$ : 1 The median of following series 520, 20, 340, 190, 35, 800, 121 (A) 1210 (B) 520 (C) 190 A pair of dice is thrown once. The probability that the sum of the (A) 29/36 (B) 7/36 (C) 11/12 <b>PART-D : BIOLOGY</b> Most cell membranes are composed principally of (A) DNA and ATP (B) Protein and (C) Chitin and starch (D) Nucleotides The solution in which a cell will gain water by osmosis is termed (A) Isotonic solution (B) Hypertonic se (C) Hypotonic solution (D) Both (A) and Girth of stem increases due to (A) Apical meristem (D) Vertical meri Triceps and biceps are examples of (A) Voluntary muscle (B) Involuntary in (C) Sphincter muscles (D) Smooth mu What is classification? (A) Grouping organisms together on the basis of how they resp (C) Grouping organisms together on the basis of how they resp (C) Grouping organisms together on the basis of how they resp (C) Grouping organisms together on the basis of how they resp (C) Grouping organisms together on the basis of how they resp (C) Grouping organisms together on the basis of how they resp (C) Grouping organisms together on the basis of how they resp (C) Grouping organisms together on the basis of how they resp (C) Grouping organisms together on the basis of how they resp (C) Grouping organisms together on the basis of how they resp (C) Grouping organisms together on the basis of how they resp (C) Grouping organisms together on the basis of how they resp (D) Grouping organisms together on the basis of how they resp (D) Grouping organisms together on the basis of how they resp (D) Grouping organisms together on the basis of how they resp (D) Grouping organisms together on the basis of how they resp (D) Grouping organisms together on the basis of how they sum (D) Space for rough work

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SAMPL	E PAPER (Catapult )					[ <b>9</b> ]
42.	Water vascular sys	tem is a distinctive feat	ture of			
	(A) Echinodermata		(B)	) Annelida		
	(C) Chordata		(D)	Mollusca		
43.	Common cold is a/a	an				
	(A) Chronic disease	Э	(B)	Congenital dise	ase	
	(C) Acute disease		(D)	Genetic disorde	r	
44.	Vaccination					
	(A) Develops resist	ance against the attacl	< of a di	sease.		
	(B) Can control eve	ry disease.				
	(C) Kills all the dise	ase causing organisms	s in the	area.		
	(D) Involves the use	of antibodies				
45.	Health problems rel	ated to air pollution inc	lude			
	(A) Coughing	(B) Asthma	(C)	Bronchitis	(D) All of these	
46.	Which step is not in	volved in the carbon c	ycle ?			
	(A) Photosynthesis		(B)	Transpiration		
	(C) Respiration		(D)	Burning of fossil fuels		
47.	The production and	management of fish is	called			
	(A) Pisciculture		(B)	Apiculture		
	(C) Sericulture		(D)	Aquaculture		
48.	The use of fertilizer	s in farming is an exarr	ple of			
	(A) No-cost produc	tion	(B)	Low-cost produ	ction	
	(C) High-cost produ	iction	(D)	None of these		
		Space for	rough w	ork		



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SAMPI	LE PAPER (Catapult )			[ 11 ]				
55.	55. Anil left home and cycled 10 km Southwards, turned right and cycled 5 km & turned right and cycled 10 km and turned left and cycled 10 km. How many kilometer wil he have to cycle to reach his home straight ?							
	(A) 10 km	(B) 15 km	(C) 20 km	(D) 25 km				
56.	'A' travelled Westw He them travelled I	rards 5 km, turned left ar North 3 km. How far was	nd travelled 3 km, turne s 'A' from the starting po	ed right and travelled 9 km. pint now ?				
	(A) 3 km	(B) 5 km	(C) 10 km	(D) 14 km				
57.	Amar travels one k due North. How far	m due East, then 5 km o	due South, then 2 km c nt ?	lue East and finally 9 km				
	(A) 16 km	(B) 8 km	(C) 6 km	(D) 5 km				
58.	Amit said, "This gir	l is the wife of the grand	son of my mother, "Hov	v is Amit related to the girl?				
	(A) Father	(B) Father-in-law	(C) Grandfather	(D) Husband				
59.	Introducing a girl, \ Vipin related to the	/ipin said, "Her mother is girl ?	s the only daughter of r	ny mother-in-law. "How is				
	(A) Uncle	(B) Father	(C) Brother	(D) Husband				
60.	Showing the lady in How is Vineet relat	n the park, Vineet said, "s ed to that lady ?	She is the daughter of n	ny grand father's only son."				
	(A) Brother	(B) Cousin	(C) Father	(D) Uncle				
		Space for	rough work					

[ 12 ]					SAMPLE PAPER (Catapult )			
	ANSWER KEYS							
	SAMPLE TEST PAPER							
		(For Stude	nts Goina to Cla	ass 10 <sup>th</sup> IN 20	25)			
		COURS	SE OFFERED		-			
		<u></u>						
			PHYSIC	5				
1.	(C)	2.	(B) 3.	(C)	4. (C)			
5.	(B)	6.	(D) 7.	(D)	8. (A)			
9.	(C)	10.	(C) 11.	(C)	12. (D)			
			CHEMIST	RY				
13.	(B)	14.	(D) 15.	(C)	16. (D)			
17.	(A)	18.	(D) 19.	(A)	20. (C)			
21.	(A)	22.	(D) 23.	(D)	24. (B)			
			MATHEMA <sup>.</sup>	TICS				
25.	(C)	26.	(B) 27.	(B)	28. (D)			
29.	(e) (A)	30.	(A) 31.	(_) (A)	32. (C)			
33.	(B)	34.	(A) 35.	(C)	36. (C)			
			BIOLOG	βY				
37.	(B)	38.	(C) 39.	(B)	40. (A)			
41.	(A)	42.	(A) 43.	(C)	44. (A)			
45.	(D)	46.	(B) 47.	(A)	48. (C)			
		_						
		N	IENTAL AB	ILIFY				
49.	(C)	50.	(B) 51.	(C)	52. (D)			
53.	(C)	54.	(C) 55.	(B)	56. (D)			
57.	(D)	58.	(B) 59.	(B)	60. (A)			

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