B

SCSS-ST-23 PCM

Question Booklet Sr. No.

212836

Date: 02/04/2023

Time: 2.30 Hrs.

Marks: Section-A = 30 + Section-B = 240 = 270

Important Instructions:

- 1. Immediately fill the particulars on this page of the Test Booklet as well as Answersheet with Black or Blue Ball Pen. *Use of pencil is strictly prohibited*.
- 2. Do not open this Test Booklet until you are asked to do so.
- 3. This Test Booklet contains of **90** questions.
- 4. There are two sections in the question paper i.e. Section–A and Section–B.
- 5. The **Section–A** contains three parts i.e. *Part-I, Part–II* and *Part-III*.
- 6. The *Part-I* contains 10 questions of English.
- 7. The Part-II contains 10 questions of Basic Mathematics.
- 8. The Part-III contains 10 questions of Mental Ability.
- 9. In Section-A, each question carries ONE mark. There is no negative marking system.
- 10. The **Section–B** contains **THREE** parts i.e. *Part–II*, *Part–II* and *Part-III*.
- 11. The *Part-I* contains **20** questions of **Mathematics**.
- 12. The Part-II contains 20 questions of Physics.
- 13. The *Part-III* contains **20** questions of **Chemistry**.
- 14. In the **Section–B**, each question carries **4** marks. There is **negative** marking system. For each wrong answer **1** mark will be deducted from obtained marks.
- 15. There are four choices for every question, out of which only one choice is most correct.
- 16. Filling up more than one responses in any question will be treated as wrong response and marks for this will be deducted according to negative system.
- 17. No candidates is allowed to carry any printed or written textual material, bits of papers, cell phone and any other electronic devices.
- 18. Rough work is to be done on the space provided in the Test Booklet only.
- 19. On completion of the test, the candidate must hand over the Answer Sheet to the Invigilator on duty. *However, candidates are allowed to take away this Question Paper with them.*
- 20. Do not fold or make any stray marks on the Answer Sheet.

Name of the Candidate (in Capital lett	ers):		
Seat No : In figures			

(P.T.O.)

April 02, 2023

Space For Rough Work

		Section - A:	(Part-	-I – English)		
Insti	ructio	n :				
01.	Choose the one that can be substituted for the given phrase :					
	One who sacrifies his life for a specific cause					
	1)	soldier	2)	revolutionary		
	3)	patriot	4)	martyr		
Instr	uction	n:				
02.	Find	the word that conveys the same mea	aning.			
	HAI	LLOWED				
	1)	favourite	2)	precious		
	3)	sacred	4)	respected		
Inst	ructio	n :				
03.	Sele	ct the word that is opposite in me	aning.			
	DISI	PLAY				
	1)	demonstrate	2)	conceal		
	3)	exhibit	4)	show		
Inst	ructio	n:				
04.	Sele	ct the pair of words to replace the	qustic	on mark.		
	Carl	oohydrates: Obesity::?:?				
	1)	Pressure : Extrusion	2)	Hostility: War		
	3)	Avesion: Regression	4)	Sugar : Cavities		
Inst	ructio					
05.	Se	lect from the answer choices given	under	the sentence to form grammatically correct		
	ser	itence :				
	Su	ch people never have and never	will b	e trusted .		
	1)	never have and will be trusted				
	2)	never have been trusted and nev	er wil	l be trusted		
	3)	never have had anyone trust the	m and	never will have anyone		
	4)	never have and never will be tru	st			
Inst	ructio	on:				
06.		lout the correct meaning of the Id	iomat	ic expression :		
	Und	ler a cloud				
	1)	under suspicion	2)	under observation		
	3)	experiencing cloudy weather	4)	enjoying favourable luck		
	ructio					
07.		ose the word that best completes				
		-	mess_	to availability and quality of services		
		were highlighted.	27			
	1)	related	2)	approximate		
amendireksiidi A	3)	beside	4)	nearly		
Apri	il 02, 2	2023	(3)	(P.T.O.)		

Instruction:

08. Select the most appropriate word to fill in the blank.

He has the full facts but is deliberately hiding them.

1) under his sleeves

2) upon his sleeves

3) up his sleeves

4) in his sleeves

Instruction:

09. Identify the part that contains an error.

Candidates must/have excess/to good/reference books.

1) 3

2) 4

3) 1

4) 2

10. I look him as an authority on Indian Economics.

1) for

2) of

3) at

4) on

Part-II - Basic Mathematics

11. The population of the city is 6000 and $\frac{1}{4}$ th of the population is male and rest of them are

female. If the 30 % of the male are married, then the percentage of married female in the city is

1) 25 %

2) 35 %

3) 10 %

4) 15%

12. $(x + y)^3 - 3(x + y)xy - 3(x - y)xy - (x - y)^3 = q$ then q is

 $1) \qquad 6x^2y$

2) $6xv^2$

3) $2y^3$

4) $8x^3$

13. The base radii of a cone and a cylinder are equal. If their curved surface areas are also equal, then the ratio of the slant height of the cone to the height of the cylinder is

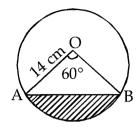
1) 1:1

2) 2:1

3) 1:3

4) 3:1

14. The area of shaded region is



1) 17.89

2) 18.50

3) 16.21

4) 17.05

15. If $\log_b n = 2$ and $\log_n 2b = 2$ then the value of b^3 is

1) 3

2) 2

3) 4

4) 6

16. The remainder obtained on dividing $x^3 + 3x^2 - 5x + 4$ by (x - 1) is

1) –1

2) 1

3) 2

4) 3

17. Robert can finish the writing of the book in 8 days while James can finish the same work in 10 days. If they work together then how long they will take to finish the same work?

1) $\frac{21}{2}$ days

2) $\frac{20}{3}$ days

3) $\frac{4}{9}$ days

4) $\frac{40}{9}$ days

18. $(\sec A + \tan A) (1 - \sin A) =$

1) cosecA

2) cosA

3) sec A

4) sinA

19. If A (-2, -1), B(a, 0), C (4, b) and D (1, 2) are the vertices of a parallelogram then value of a + b is

1) 3

2) 5

3) 4

4) 1

20. The population of a village is 25000. If the annual birth rate is 5.3 % and the annual death rate is 3.3 %, calculate the population after two years

1) 26100

2) 26010

3) 25010

4) 25100

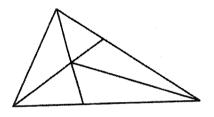
			Part–III – Ment	al Ability
21.	Fin	d the missing term i	n each of the followir	ng series.
	2, 5	, 9, 19, 37,?		
	1)	73	2)	75
	3)	78	4)	76
22.	Cho	oose the correct alter	rnative from the give	n ones that will complete the series.
	36,	34, 30, 28, 24,	?	
	1)	20	2)	23
	3)	26	4)	22
23.	Cat	tle : Herd : : Sheep :	?	
	1)	Flock	2)	Swarm
	3)	Mob	4)	Shoal
24.	Cho	oose the word which i	s least like the other wo	ords in the groups.
	1)	Zebra	2)	Lion
	3)	Horse	4)	Tiger
25.	In a	certain code, TEACH	ER is written as VGCE	JGT. How is CHILDREN written in that code?
	1)	EJKNEGTP	2)	EGKNFITP
	3)	EJKNFTGP	4)	EJKNFGTO
26.	Poir	nting towards a perso	n, a man said to a won	nan, "His mother is the only daughter of your
	fath	er". How is the woma	n related to that perso	on?
	1)	Daughter	2)	Sister
	3)	Wife	4)	Mother
27.	Am	an is facing west. He t	urns 45° in the clockwi	se direction and then another 180° in the same
	dire	ction and then 270° ir	n the anti-clockwise dir	rection. Which direction is he facing now?
	1)	South	2)	North-west
	3)	South-west	4)	West
28.	If+1	means ×, × means –, ÷	means+and – means	\div , then which of the following gives the result
	of 1	$75 - 25 \div 5 + 20 \times 3 + 1$.0 ?	
	1)	77	2)	160
	3)	2370	4)	240
			Space for Rougl	h Work

- 29. There are some benches in a classroom. If 4 students sit on each bench, then 3 benches are left unoccupied. However, if 3 students sit on each bench, 3 students are left standing. How many students are there in the class?
 - 1) 36

2) 48

3) 64

- 4) 56
- 30. How many triangles are there in the following figure?



- 1) 6
- 3) 12

- 2) 10
- 4) 11

Space for Rough Work

Section - B : (Part-I – Mathematics)

- The largest number that will divide 396, 434 and 540 leaves the remainder 5, 9 and 13 31. respectively is
 - 1) 15

2) 17

3) 13

- 4) 19
- For the system of equation given by $\frac{4}{16x + 24z} + \frac{12}{21x 14z} = \frac{1}{2}$ and $\frac{14}{4x + 6z} + \frac{4}{3x + 2z} = 2$ find the value of x - z =
 - 1) 7

2) 2

3)

- 4)
- If $x = 3 + 3^{2/3} + 3^{1/3}$ then value of $x^3 9x^2 + 18x 12$ is 33.

3) -1

- 4)
- If α , β be the roots of the equation $x^2 2x + 3 = 0$ then equation whose roots are $\frac{1}{\alpha^2}$ and
 - $\frac{1}{\beta^2}$ is

1) $x^2 + 2x + 1 = 0$ 3) $9x^2 - 2x + 1 = 0$

- $4) \qquad 9x^2 + 2x 1 = 0$
- Solve the equation $6\left(x^2 + \frac{1}{x^2}\right) 25\left(x \frac{1}{x}\right) + 12 = 0$ and find sum of all real values of 'x'
 - 1) $\frac{15}{2}$

3) 5

- none of these
- $x = 3\sqrt{3} + \sqrt{26}$ then the value of $\frac{1}{2} \left(x + \frac{1}{x} \right)$ is
 - $2\sqrt{3}$ 1)

3) 27

- 37. If $x = \frac{1}{7 + 4\sqrt{3}}$ and $y = \frac{1}{7 4\sqrt{3}}$, then find value of λ for $5x^2 7xy 5y^2 = -7(1 + \lambda\sqrt{3})$
 - 1)

3) 60

- 38. If $x^{x^{3/2}} = (x^{3/2})^x$ then the number of values of x are
 - 1)

3) 2

4) 4

39.	The	minute hand of a clock is $\frac{x}{2}$ cm lor	ıg. Fir	nd the area of face of the clock described by
	min	ute hand in 35 minutes		
	1)	$\frac{11x^2}{24}$	2)	$\frac{7x^2}{24}$
	3)	$\frac{3x^2}{24}$	4)	$\frac{13x^2}{24}$
40.	If a,	b, c are in AP then $\frac{(a-c)^2}{(b^2-ac)} =$		
	1)	2	2)	6
	3)	4	4)	8
41.	The	number of terms of the AP 3, 7, 11,	15	to be taken so that sum is 406
	1)	13	2)	14
	3)	15	4)	12
42.	,	o circles both of radia 'α' touch ea	ch ot	her and each of them touches internally a
				circle which touches all the three circles is
		$\frac{1}{3}\alpha$		$\frac{2}{3}\alpha$ $\frac{3}{4}\alpha$
	3)	$\frac{4}{2}\alpha$	4)	$\frac{3}{4}\alpha$

43. Sides other than the hypotanuse of a right angled triangle are of lengths 16 cm and 8 cm find the length of the side of largest square that can be inscribed in the triangle

1)
$$\frac{13}{3}$$
 cm 2) $\frac{16}{3}$ cm 3) $\frac{19}{3}$ cm 4) none of these

44. $\cos 1^{\circ} + \cos 2^{\circ} + \cos 3^{\circ} + \dots + \cos 180^{\circ} =$

45. An aeroplane flying horizontally 1 km above the ground is observed at an elevation of 60° and after 10 seconds the elevation is observed to be 30° the uniform speed of the aeroplane in km/hr is

aeroplane in km/hr is	
1) 240	2) $240\sqrt{3}$
3) $60\sqrt{3}$	4) none of these

46.	If th	ne radius of a sphere is increased by	10 %	then its volume is increased by
	1)	34 %	2)	32.1 %
	3)	33 %	4)	33.1 %
47.	A tı	riangle with vertices $(4, 0)$, $(-1, -1)$ a	nd (3,	5) is
	1)	right angled but not isosceles	2)	isosceles but not right angled
	3)	isosceles and right angled	4)	neither right angled nor isosceles
48.	The	e point (a, b), (c, d) and $\left(\frac{kc + \ell a}{k + \ell}, \frac{kd}{k}\right)$	$\frac{+\ell b}{+\ell}$	are
	1)	vertices of an equilateral triangle	2)	vertices of an isosceles triangle
	3)	vertices of a right angled triangle	4)	collinear
49.	Fro	m a box containing 100 tickets num	bered	1, 2, 3, 4, 100. One ticket is drawn. If the
	nun	nber on this ticket is x, then the prob	abilit	ty that $x + \frac{1}{x} > 2$ is
	1)	0	2)	1
	3)	0.99	4)	none of these
50.	If th	e five out of seven data is 14, 12, 10,	1, 2 ha	s mean and variance 8 and 16 respectively.
	Out	of seven data, five data is given abo	ove. F	ind remaining two data
	1)	7 and 6	2)	8 and 6
	3)	6 and 9	4)	9 and 10

(Part -II - Physics)

51. Make a match

			A CONTRACTOR OF THE CONTRACTOR
	A-Group		B-Group
1)	Fluid	(a)	Higher pressure
2)	Blunt knife	(b)	Atmospheric pressure
3)	Sharp needle	(c)	Specific gravity
4)	Relative density	(d)	Lower pressure
5)	Hecto pascal	(e)	Same pressure in all directions
1)	1-e, 2-c, 3-a, 4-b, 5-d	2)	
3)	1-e 2-d 3 2 4 a 5 h	4)	1-c, 2-a, 3-b, 4-e, 5-d

3) 1-e, 2-d, 3-a, 4-c, 5-b

4) 1-b, 2-c, 3-a, 4-e, 5-d

52. Complete the following tables.

Name - (Marie - marie	Mass (kg)	Volume (m ³)	Density (kg/m ³)
a)	350	100	
<u>b)</u>		120	4
1)	2) 25 1)		

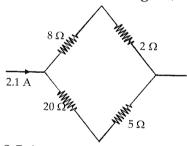
1) a) \rightarrow 35 b) \rightarrow 48

2) a) \rightarrow 35 × 10³ b) \rightarrow 30

3) a) \rightarrow 3.5 b) \rightarrow 480

4) a) $\rightarrow 0.35$ b) $\rightarrow 4.8$

53. In the circuit shown in figure, the current flowing through 5Ω resistance is



1) 0.5 A

2) 0.9 A

3) 0.6 A

4) 1.5 A

54. A wire of resistance R is stretched to twice of it's original length, it's new resistance will be

1) 4R

2) R/4

3) 2R

4) R/2

55. A thermally insulated pot has 150 g ice at temperature 0°C. How much steam of 100°c has to be mixed to it, so that water of temperature 50°C will be obtained. L_f = 80 cal/g L_v = 540 cal/g , C_w = 1 cal/g°C

1) 33 kg

2) 3.3 g

3) 3.3 kg

4) 33 g

56. A convex lens is in contact with concave lens. The magnitude of the ratio of their focal length is 2/3. Their equivalent focal length is 30 cm. What are their individual focal lengths?

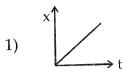
1) -75, 50

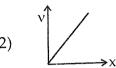
2) 10, –15

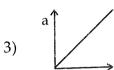
3) 75,50

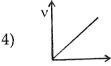
4) -10, 15

Which one of the following graph represents uniformly accelerated motion? 57. (where symbols represent usual meaning)









Two balls of masses 50 g and 100 g are moving along the same line and direction with 58. velocities 3 m/s and 1.5 m/s respectively. They collide and after collision, the first ball moves with velocity 2.5 m/s. Determine velocity of second ball.

 $1.75 \, \text{m/s}$ 1)

 $2 \, \text{m/s}$ 2)

 $3.5 \,\mathrm{m/s}$ 3)

 $1.5 \,\mathrm{m/s}$ 4)

The number of images formed by two plane mirrors inclined at 60° of an object placed 59. symmetrically between mirrors is

1) 6 2)

3) 5 4) infinite

The work done on an object does NOT depend on 60.

Displacement

- Applied force 2)
- Initial velocity of the object 3)
- The angle between force & displacement 4)

If the energy of a ball falling from a height of 20 meters is reduced by 20 %, how high 61. will it rebound?

4 m 1)

16 m 2)

3) 8 m

does not rebound 4)

A concave mirror of focal length 'f' produces a real image 'n' times the size of the object. 62. The distance of the object from the mirror is

1) f(n-1)

f(n+1)2)

3) $f\left(\frac{n+1}{n}\right)$

4) $f\left(\frac{n-1}{n}\right)$

Echo is one of the phenomena of reflection of second. When we go to the mountain top 63. and shout loudly, we hear our own sound after some time. What should be the minimum distance of the object for the echo to occur? (v = 340 m/s)

10 m 1)

 $34 \, \mathrm{m}$ 2)

17 m

4) 68 m

What will be the increase in length of a steel rod of length 0.2 m, when its temperature is 64. increased by 50°C? The coefficient of linear expansion of steel is 1.3×10^{-5} °C⁻¹.

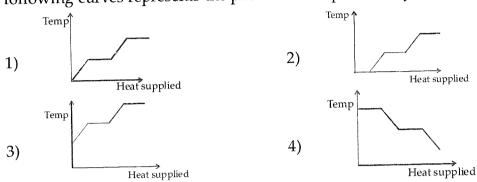
 $1.3 \times 10^{-2} \,\mathrm{m}$ 1)

 1.3×10^{-5} m 2)

 $1.3 \times 10^{-4} \, \text{m}$ 3)

 $1.3 \times 10^{-3} \,\mathrm{m}$ 4)

A block of ice at -10°C is slowly heated and converted to steam at 100°C. Which of the 65. following curves represents the phenomenon quantitively.



- If sum of velocities of light in two media is 3.25×10^8 m/s and their difference is 0.75×10^8 m/s. Find the refractive index of the second medium with respect to first medium.
 - 1.6 1)

1.25 2)

3) 1.5

- 4) 1.3
- A converging lens is used to form an image on a screen. When upper half of the lens is 67. covered by an opaque screen
 - half the image will disappear 1)
 - complete image will be formed of same intensity 2)
 - complete image will be formed of decreased intensity 3)
 - half image will be formed of same intensity
- The radius of planet P is half the radius of planet Q. If the mass of P is mp, what must be 68. the mass of Q so that the value of acceleration due to gravity (g) on Q is same that of its value on P?
 - 1) $2 \, \mathrm{m}_{\mathrm{p}}$

3)

69. Make a match.

	A-group	B-group	C-group
ī	Mass	A) m/s ²	a) Zero at the centre
II.	Weight	B) kg	b) Measure of inertia
III.	Acceleration due		
	to gravity	C) Nm^2/kg^2	c) Same in the entire universe
	to gravely	D) N	d) Depends on height

- $I \rightarrow B \& b$, $II \rightarrow D \& a$, $III \rightarrow A \& d$ $I \rightarrow B \& b$, $II \rightarrow D \& d$, $III \rightarrow A \& b$ 2) 1)
- $I \rightarrow D \& a, II \rightarrow B \& b, III \rightarrow C \& c$ $I \rightarrow B \& a$, $II \rightarrow C \& d$, $III \rightarrow D \& c$ 4)
- Two thin, long, parallel wires seperated by a distance d carry a current i in the same 70. direction. They will
 - Repel each other 1)

- Attract each other 2)
- Depend on material of the wire
- 4) Can't say

Part-III - Chemistry 71. The orbital with highest energy is 1) 2) 4s3) 4d 4) 5s72. Milk is 1) Colloid 2) Solution 3) Suspension 4) both 1 and 3

The number of basic and acidic radicals among the following are 73.

74. Covalent bond formed due to?

1)

3)

76.

1) Transfer of electron 2) Gain of electron Loss of electron 4) Sharing of electron

When sodium hydroxide is added to ammonium carbonate salt and then a glass rod *7*5. dipped in dilute hydrochloric acid is brought near the test tube, we observe Brisk efflorescence 1) 2) Dense white fumes

Yellowish green vapours 4) Reddish brown gas At 25°C the pH of pure water is 7. The ratio of [H+] and [OH-] ions concentration is 1) 0.1

3) 0.2 1.2

Which of the following represent a chemical change? 77.

- Extraction of copper from copper pyrites 1)
- 2) Distillation of water
- 3) Melting of wax
- 4) Dissolution of salt in water

78. The ozone layer lies in

- Stratosphere 1) 2) Troposphere 3) Ionosphere 4) Mesosphere
- To which class a dyes does phenolpthalein belong? 79.
 - Azo dyes

2) Nitro dyes Triphenyl methane dyes 4) Phthalein dyes

Match the following compound. 80.

		Ì	II
a)	CaO	i)	Table salt
b)	Ca(OH) ₂	ii)	Slaked lime
c)	CaCO ₃	iii)	Quick lime
<u>d)</u>	NaCl	iv)	Lime stone
1)	a–iii, b–ii, c–iv, d–i	2)	a–ii, b–iii, c–iv, d–i
3)	a–i, b–ii, c–iii, d–iv	4)	a-iv.b-iii.c-ii d-i

81. Match the compound with its nature.

•\	Column-I		Column-II
1)	CO	p)	Acidic
11)	CO_2	q)	Neutral
iii)	CaO	r)	Basic
1)	i–r, ii–p, iii–q	2)	i–p, ii–q, iii–r
3)	i–q, ii–p, iii–r	$\stackrel{'}{4)}$	i–p, ii–r, iii–q

82.	2. Which among the following are unsaturated hydrocarbons?				
	i)	CH ₃ -CH ₂ -CH ₂ -CH ₃	ii)	$CH_3 - C \equiv C - CH_3$	
	iii)	CH ₃ -CH-CH ₃ CH ₃	iv)	$CH_3 - C = CH_2$ CH_3	
		CH ₃		CH ₃	
	1)	i and iii	2)	ii and iv	
	3)	ii and iii	4)	iii and iv	
83.	Mat	ch the following compounds with	their 1	mass ratio of carbon and hydrogen.	
	A)	CH ₄	i)	12:1	
	B)	C_2H_6	ii)	3:1	
	C)	C_2H_2	iii)	4:1	
	D)	CH ₂ O	iv)	6:1	
	1)	A–i, B–iii, C–ii, D–iv	2)	A–ii, B–iii, C–iv, D–i	
	3)	A–ii, B–iii, C–i, D–iv	4)	A–i, B–iv, C–ii, D–iii	
84.	,	t member of ester homologous serie	,	,,,	
	1)	Methyl ethanoate	2)	Methyl methanoate	
	3)	Methyl acetate	4)	Acetic acid	
85.	Whi	ch of the following is liquid at room	,		
	1)	Methane	2)	Ethane	
	3)	Butane	4)	Heptane	
86.	Whi	ch one of the following has highest	,	1	
	1)	Li	2)	K	
	3)	Na	4)	Rb	
87.	Wha	nt will be the pressure in atmospher	e if or	ne mole of gas occupies 10 L volume at 200	
		mperature?(Given R = 0.0821 L atr			
	1)	16.42 atm	2)	0.1642 atm	
	3)	1.642 atm	4)	2.461 atm	
88.	A pr	e-weighed vessel was filled with H	2 at S	ΓP and weighed. It was then evacuated and	
				ressure and again weighed. The weight of	
		vill be			
	1)	16 times that of H ₂	2)	Half of that of H ₂	
	3)	One fourth of that of H ₂	4)	One sixtenth of that of H ₂	
89.	The	amount of calcium hydroxide forn	ned w	then with 18 gram of water reacts with 28	
	gran	n of calcium oxide			
	1)	74 g	2)	56 g	
	3)	37 g	4)	28 g	
90.	The	mass of one mole of electrons is (G	iven 1	e- weighs 9.1 × 10 ⁻³¹ kg)	
	1)	$8 \times 10^{-25} \mathrm{g}$	2)	$8.4 \times 10^{-26} \mathrm{kg}$	
	3)	$4.8 \times 10^{-8} \mathrm{g}$	4)	$5.48 \times 10^{-4} \mathrm{g}$	

Space For Rough Work

IMPORTANT DATES	
SCREENING TEST (Shahu) - 2023 (OFFLINE MODE ONLY)	02 Apr. 2023
Online display of provisional answer keys	02 Apr. 2023 : 06 PM
Last Date Feedback and comments on Provisional Answer Keys from Candidates	04 Apr. 2023 : 06 PM
Online declaration of final answer keys	05 Apr. 2023 : 06 PM
Copy of candidate responses to be available on the website	07 Apr. 2023 After 02 PM
Result of SCREENING TEST 2022 (Indivisual Login)	07 Apr. 2023 After 02 PM
Parent's Meet (PCM GROUP)	09 Apr. 2023 at 02-30 PM
Parent's Meet (PCB GROUP)	09 Apr. 2023 at 11-00 AM
Admissions : First List	09 Apr. 2023 to 13 Apr. 2023 UPTO 06 PM
Admissions : Second List	15 Apr. 2023 to 18 Apr. 2023 UPTO 06 PM

वरील तारखांमध्ये काही बदल होऊ शकतो विद्यार्थी आणि पालकांनी अधिक माहितीसाठी वेबसाईट पाहणे.