	පළාප மாச DI	ත් අධසාපන 511කාස් සබා EPARTMENT (ෙළපාර්ප ඛිத් නිකෝ DF EDUCAT	ාමේන්තුව க்களம் - ION – NORT	<mark>- උතුරු</mark> ഖட மத்திய H CENTRAL	මැද පළාන u மாகாணம் .PROVINCE		
Grad	le	Firs	st Tern	n Test	- 2023			
11		Subject :	Mather	natics II				
		Subject :-						
Schoo	Number :						3 ho	ours and 10
Indez	Number :					Ti	ime : min	utes
• Use addit answer.	ional time to	o select the	question	s by readi	ing and o	rganize to o	rder of q	uestions to
Answer to	en questions	by selecting	g five que	stions from	m part A	and five que	stions fro	m part B.
• When any	wering the q	question wr	ite down	the releva	nt steps a	nd accurate	measurin	ıg units.
The volue right circ of radius	ne of a right ular cylinder r is $\frac{4}{3} \pi r^3$. (2)	t circular c c of base ra $\pi = \frac{22}{7}$	one of ba dius r and	se radius 1 height h	r and hei is $\pi r^2 h$ a	ght h is 1 / ₃ πr and the volu	² <i>h</i> , the v me of a so	olume of a olid sphere
			Da	rt A				
		A	nswer fiv	e auestion	s only.			
	1 2	400.000		<u> </u>	J			
01) A person	who earns 2	400 000 ru	pees inco	me for a	year, pays	the income	tax accor	ding to the $\frac{1}{1}$
following	table. Show t	that, the int	erest earne	ed at the e	nd of two	years is 91 6	580.00 rup	ees when $\frac{-}{5}$
of the ren annual sin	anning amou aple interest r	ant of his in the of 10%.	come afte	er paying	the incom	e tax, 18 dep	osited in t	the bank at
	Income			me tax				
	F ¹ + 1.0	perce	percentage					
	First 1 000 000 rupees			s Tax free				
	Next 50	0 000 rupee	s i	4%) R0%				
	Next 500 000 rupees						(10 marks)	
	110110 00	o o o o 1 o p • •		270				
02) An incomp	lete table pre	pared to dra	w the gray	ph of the f	unction <i>y</i>	$=2x^2-5$ is	s shown be	elow.
x	-3	-2	-1	0	1	2	3	
<u>у</u>	13		-3	-5	-3	3	13	
i) Fin ii) Usi one iii) Wr iv) Us v) Wr by	d the value of ng the scale of unit along th ite the interva- ng the graph, te the equation two units alo	f y when $x = 5$ of 10 small of e $y - axis$, al of values , find the ro- on of the group the $y - 5$	= -2. divisions a draw the g of x for w ots of $2x^2$ caph which	as one unit graph of the high the function of the function $t^2 - 5 = 0$. In this obtain	along the e above fu unction is ed when t	x - axis andinction.decreasing nohe above gra	(01 n d 5 small o (03 n egatively. (02 n (02 n uph is mov	nark) livisions as narks) narks) narks) ved upward narks)
Athematics II							(02 11	Page 1

03) The following frequency distribution table shows the information about the attendance of the students during a certain school term.

Attendance of the students	300- 350	350 - 400	400 - 450	450 - 500	500- 550	550 - 600	600 - 650
Number of days	4	7	10	15	11	8	5

i) What is the modal class of this frequency distribution?

(01 mark)

- ii) Find the mean of the attendance of the students per day using the mid value of the modal class as the assumed mean or otherwise. (05 marks)
- iii) It is decided to provide a glass of milk for each of the children of this college in the morning. If one glass of milk costs 50 rupees, find the amount of money spent for a day.
 (02 marks)
- iv) If one glass contains 200 liters of milk, find the number of liters of milk required for a 60 days school term. (02 marks)

04) a) When the sister gave 30 rupees from the amount of money she had, to his brother, the amount of money both of them had, are equal. When brother gave 30 rupees from the amount of money he had, to his sister, the amount of money sister had is equal to the twice of the amount of money brother had. Find the amount of money sister had and the amount of money brother had separately by constructing and solving a pair of simultaneous equations taking the amount of money sister had as *x* rupees and the amount of money brother had as y rupees. (06 marks)

b) Expand $(x + 5)^3$ and verify your answer when x = 3. (04 marks)

 05)
 i) Simplify, $\frac{2x^2}{3y^3} \div \frac{4x}{9y^2}$ (03 marks)

 ii) Simplify, $\frac{2}{x^2-9} \div \frac{3}{(x+3)^2}$ (03 marks)

 iii) Solve, $x^2 \div 5x - 36 = 0$ (04 marks)

06) A mechanic who is standing 10 *m* above a vertical tower on horizontal level, observes a parked car at an angle of depression of 30° . After few minutes, a man who is in the parked car, observes the mechanic who is in the top of the tower, at an angle of elevation of 65° .

i) Indicate the given information in the rough sketch.(03 marks)ii) Draw the scale diagram using the scale of 1 cm represents 5 m.(03 marks)iii) Using the scale diagram, find the actual distance from foot of the tower to the parked car.(02 marks)iv) Using the scale diagram, find the actual height of the tower.(02 marks)







11) If the given solid is made by welding a solid hemisphere of radius r and a solid cone of radius r and height is six times of its radius, which were made by melting a solid cylindrical shaped metal rod of radius a and height is five times its radius (Assume that there is no wastage of metal when welding .), show that $a = \frac{2r}{\sqrt[3]{15}}$ and If r = 2.6 cm, find the radius of the cylindrical shaped metal rod to the nearest whole number using the logarithms tables.



(10 marks)

12) In a sports training squad of 137 athletes provides training for team and athletics. The athletes those who play team events, don't play athletics. While 60 women athletes in the training and 72 in athletic training. 50 men athletes are practicing team events.



iv) Later, all the women athletes turned to athletics. Considering the changed data and draw a suitable separate Venn diagram and indicate the relevant information. (04 marks)