AGA KHAN UNIVERSITY EXAMINATION BOARD

SECONDARY SCHOOL CERTIFICATE

CLASS IX EXAMINATION

APRIL/ MAY 2019

General Mathematics Paper II

Time: 2 hours 15 minutes Marks: 45

INSTRUCTIONS

Please read the following instructions carefully.

1. Check your name and school information. Sign if it is accurate.

I agree that this is my name and school. Candidate's Signature

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- 2. There are TEN questions. Answer ALL questions. Choices are specified inside the paper
- 3. When answering the questions:

Read each question carefully.

Use a black pointer to write your answers. DO NOT write your answers in pencil.

Use a black pencil for diagrams. DO NOT use colour pencils.

DO NOT use staples, paper clips, glue or correcting fluid.

Complete your answer in the allocated space only. DO NOT write outside the answer box.

- 4. The marks for the questions are shown in brackets ().
- 5. You may use a simple calculator if you wish.

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Q.1. (Total 3 Marks)
Salman has a monthly salary of Rs 95,000. He pays Rs 21,000 as school fees of his two children. The fee of the elder child is 10% more than the fee of the younger child. Find the fee of both the children separately.
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	(ATTEMPT EITHER PART a OR PART b OF Q.2.)		
Q.2.			
a.	Saima has annual savings of Rs 600,000 and jewellery of worth Rs 350,000. She mistakenly paid <i>zakat</i> at the rate of 2% but later on she realised her mistake.		
	(Note: Rate of zakat is 2.5 %)		
	i. Calculate the <i>zakat</i> she paid at the rate of 2%. (1 Mark)		
	ii. How much more amount she should pay to correct her mistake? (1 Mark)		
	iii. She paid <i>zakat</i> of Rs 13,000 to her needy relative. What percentage of <i>zakat</i> did she pay to her relative? (2 Marks)		
b.	Mr Hashim left a property of Rs 7,800,000 as his inheritance. His legal heirs consist of a widow, three daughters and two sons. The share of widow is $\frac{1}{8}th$ of the total property. The remaining property will be divided among his children. A son received twice as much as a daughter. Find the share of each legal heir. (4 Marks)		
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(ATTEMPT EITHER PART a OR PART b OF Q.3.)		
Q.3. (Total 5 Marks)		
a. A fruit vendor bought 100 kg apples for Rs 9,000, 30 dozen bananas for Rs 1,800 and 50 kg grapes for Rs 6,000. He spent Rs 900 on transportation and sold all the fruits as per the given rates.		
 Apples at Rs 140 per kg Bananas at Rs 75 per dozen Grapes at Rs 150 per kg 		
i. Find his net profit on the sale of these fruits. (3 Marks)		
ii. If 3 dozen bananas were rotten, then find his profit or loss on the sale of bananas. (2 Marks)		

(ATTEMPT EITHER PART a OR PART b OF Q.3.)

b. A superstore offers a discount of 15% on marked price of its items. However, it still makes a profit of 20% on its items. Samia bought the following items from the superstore.

Item Bought	Marked Price (Rs)
Dinner set	8,800
TV set	39,990
Washing machine	24,000

i.	Find the discount Samia got on the items she bought.	(2 Marks)
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ii.	Find the cost price of the washing machine paid by the superstore at the tim	e of purchase. (3 Marks)
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Q.4. (Total 3 Marks)

Sarvat invested in two schemes for a period of 10 years. The details of these schemes are shown in the given table.

Scheme	Amount Invested (Rs)	Simple Interest Rate/ Annum
A	45, 000	5.5%
В	40,000	6%

nich scheme is	better for investment? Justify your answer with the necessary calculations.
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of Rs 35,000 and commissions on s	(Total 5 Marks) sales as per the following
Monthly Commission	
6% of the total sale	
8% of the total sale	
Rs 10,000 + 8% of the total sale	
	Monthly Commission 6% of the total sale 8% of the total sale

His sales of January and February are Rs 90,000 and Rs 110,000 respectively. Find his total salary for

tnese months.
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Q.6.	(ATTEMPT EITHER PART a OR PART b OF Q.6.) (Total 5 Marks)
a.	Apply the laws of exponents to reduce $\sqrt[3]{125 \times \frac{x^{-4}}{x^2}} \times \sqrt{\frac{x^4}{25}}$ in its simplest form.
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(ATTEMPT EITHER PART a OR PART b OF Q.6.)		
b. Show that $3\log x - \frac{5}{2}\log x + \frac{3}{2}\log y - 2\log y = \log \sqrt{\frac{x}{y}}$.		
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Q.7.	(Tot	al 4 Marks)
	cture hall has 15 seats in the first row, 18 seats in the second row, 21 seats in the third ro eats in the fourth row and so on. The lecture hall has total 10 rows of seats.	w,
i.	Find the number of seats in the tenth row of the lecture hall.	(3 Marks)
ii.	Find how many more seats are in the tenth row than in the first row of the lecture hall.	(1 Mark)
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Q.8. (ATTEMPT EITHER PART a OR PART b OF Q.8.) a. For the sets $U = \{a, b, c, d, e, f, g, h\}$, $A = \{a, b, c, d, e, f\}$ and $B = \{b, f, h\}$, first the sets $U = \{a, b, c, d, e, f, g, h\}$, $A = \{a, b, c, d, e, f\}$ and $B = \{b, f, h\}$, first the sets $A = \{a, b, c, d, e, f\}$ and $A = \{a, b, c, d, e, f\}$	(Total 5 Marks)
i. $(A \cup B)^C$	(2 Marks)
ii. $(A \cap B)^{\mathbb{C}}$	(2 Marks)
iii. $(A \cup B)^{C} \cap (A \cap B)^{C}$	(1 Mark)
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			(ATTEMPT EITHER PART a OR PART b OF Q.8.)	
b.	Two	sets	are defined as $S = \{1, 2, 3, 4\}$ and $T = \{2, 6, 8\}$.	
	i.	Fro	m S to T , state a/ an	
		I.	binary relation which is NOT a function.	(1 Mark)
		II.	into function.	(1 Mark)
		III.	onto function.	(1 Mark)
	ii.		possible to find a one-one and onto function (bijective function) from S to T ? answer.	Y Justify (2 Marks)
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Q.9. (Total 5 Marks)

For the linear equation 2x + 3y = 12,

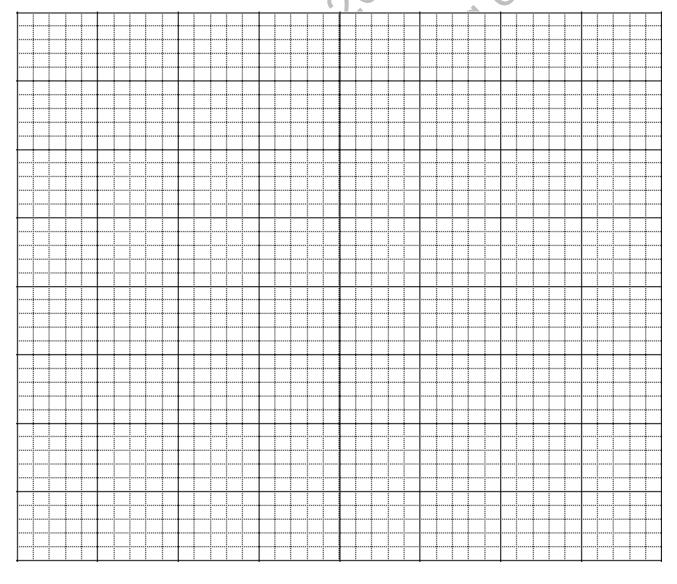
i. find the missing values of *x* and *y* in the given table.

(3 Marks)

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ii. Use any two points of the table to draw the line 2x + 3y = 12 on the given graph.

(2 Marks)



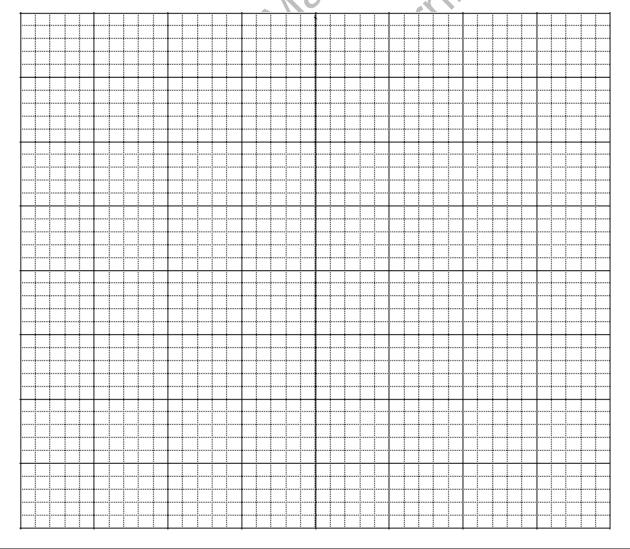
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(ATTEMPT EITHER PART a OR PART b OF Q.10.)

Q.10. (Total 6 Marks)

a. The given data shows the ages (in years) of 35 people working in a department. Complete the table to construct a cumulative frequency curve on the given graph.

Age (year)	Number of People	Cumulative Frequency
20 – 30	6	
30 – 40	8	
40 – 50	9	,0)
50 - 60	10	,0,
60 – 70	2	ing



(ATTEMPT EITHER PART a OR PART b OF Q.10.)

b. Saima recorded the time taken (in seconds) by 22 people to cover the same distance in a race. The collected data is given in the table.

Time (s)	Frequency	Class Boundary
51 – 55	2	
56 – 60	8	
61 – 65	9	
66 – 70	3	9 %

Find th	he mode of this data.	
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