

MATHEMATICS

Subject Code No. 120

A. GENERAL OBJECTIVES

The examination will test the candidates' ability to:

1. perform calculations involving whole numbers, fractions (vulgar and decimal), percentages, using the basic arithmetical operations;
2. recall and use mathematical symbols, formulae and conventions;
3. understand current systems of measurement and make use of appropriate units of measurement;
4. make use of systems of measurement in the solution of problems;
5. apply mathematical knowledge, skills and techniques in the solution of problems;
6. interpret mathematical data and graphs and make use of same in the solution of problems;
7. set out mathematical calculations in a clear and logical form, using appropriate symbols.

B. TOPICS

1. Numbers (whole and fractional)
2. Measures
3. Sets
4. Geometry
5. Graphs

C. ASSESSMENT OBJECTIVES

Topics	Essential Learning Competencies	Desirable Learning Competencies
	Candidates should be able to:	Candidates should be able to:
1. NUMBERS		
1.1 Whole Numbers	<ul style="list-style-type: none"> - write numbers up to 1 000 000 in figures and in words - state the value of a digit in a given number - use expanded notation for numbers up to 6 digits 	

Topics	Essential Learning Competencies	Desirable Learning Competencies
Whole Numbers <i>(continued)</i>	<ul style="list-style-type: none"> - add 2 numbers (up to 6 digits) whose sum does not exceed 999 999 - perform subtraction involving up to 6-digit numbers - multiply a 3-digit number by multiples of 10, 100 and 1 000 up to 9 000 - multiply a number by a 2-digit number (product not to exceed 1 000 000) - divide a number by a 2-digit number - divide numbers by 10, 100 and 1 000 and their multiples, up to 9 000 - solve word problems involving not more than two of the four operations (addition, subtraction, multiplication, division) - use even, odd, prime, rectangular (composite), square and triangular numbers - use factors and multiples - find the HCF and LCM of two numbers - express a number as a power of a given number - find the value of a simple expression involving powers of numbers (up to 3rd power) - calculate the average of a set of numbers - solve word problems on averages - solve word problems involving direct proportion - continue a number pattern or sequence involving <ul style="list-style-type: none"> (i) whole numbers (ii) ordered pairs 	<ul style="list-style-type: none"> - add up to 4 numbers whose sum does not exceed 1 000 000 - solve word problems requiring the use of a suitable combination of the four operations (addition, subtraction, multiplication, division) - find the factors of any number up to 150 - find the LCM of three numbers (each number not exceeding 100) - solve word problems involving HCF and LCM - understand and use the laws of exponents, excluding $(a^m)^n = a^{mn}$ - solve harder word problems on averages - solve harder word problems involving direct proportion - solve word problems on inverse proportion
1.2 Fractions		
1.2.1 Vulgar Fractions	<ul style="list-style-type: none"> - identify and record as fractions parts of a whole shape - recognise and use equivalent fractions 	<ul style="list-style-type: none"> - divide a fraction by another fraction

Topics	Essential Learning Competencies	Desirable Learning Competencies
Vulgar Fractions <i>(continued)</i>	<ul style="list-style-type: none"> - perform the four fundamental operations on fractions (excluding division of a fraction by a fraction) - order not more than 3 fractions - understand the concept of ‘reciprocal’ - perform addition and subtraction involving two mixed numbers - solve word problems on fractions, involving not more than two of the four operations (addition, subtraction, multiplication, division) - continue a number pattern or sequence involving vulgar fractions and mixed numbers 	<ul style="list-style-type: none"> - perform multiplication and division involving mixed numbers - understand and use ratio - express a vulgar fraction as a ratio and vice-versa - express a ratio in its simplest form - solve word problems on ratio
1.2.2 Decimal Fractions	<ul style="list-style-type: none"> - use decimal fractions (up to thousandths) - use expanded notation involving numbers of not more than 3 decimal places - order not more than 3 decimal fractions - perform the four fundamental operations on decimal fractions - solve word problems involving decimal fractions - continue a number pattern or sequence involving decimal fractions - convert a vulgar fraction into a decimal fraction and vice-versa 	<ul style="list-style-type: none"> - multiply a number of not more than 2 decimal places by a number of 1 decimal place
1.2.3 Percentages	<ul style="list-style-type: none"> - perform simple calculations involving percentages - solve simple word problems involving percentages (including profit and loss and simple interest) - express percentage as a decimal fraction or as a vulgar fraction and vice-versa 	<ul style="list-style-type: none"> - solve harder word problems on percentages (including profit and loss and simple interest)

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2. MEASURES		
2.1 Length	<ul style="list-style-type: none"> - use the units: millimetre, centimetre, metre, kilometre - convert units of length from one to another - perform the four fundamental operations on lengths - solve word problems involving length, perimeter 	<ul style="list-style-type: none"> - understand and use the term scale - solve word problems involving scale - solve harder word problems on length and perimeter
2.2 Area	<ul style="list-style-type: none"> - calculate area of rectangle, square, parallelogram, triangle - calculate surface area of cube - use the units: cm^2, m^2, km^2, hectare - convert units of area from one to another - perform the four fundamental operations on areas - solve word problems involving area 	<ul style="list-style-type: none"> - find length of edge of cube when surface area is given - find areas of composite shapes - find surface area of cuboid - work out problems on tiling - solve harder word problems involving area
2.3 Capacity/Volume	<ul style="list-style-type: none"> - use the units: millilitre, centilitre, litre, cubic centimetre, cubic metre - convert units of volume/capacity from one to another - perform the four fundamental operations on capacities/volumes - solve word problems involving capacities 	<ul style="list-style-type: none"> - find volume of cube and of cuboid - solve word problems involving volumes - solve harder word problems involving capacities
2.4 Mass	<ul style="list-style-type: none"> - use the units: gram, kilogram, tonne - convert one unit into another - perform the four fundamental operations on masses - solve word problems involving masses 	<ul style="list-style-type: none"> - solve harder word problems involving masses
2.5 Money	<ul style="list-style-type: none"> - use the units of currency: Rupees (R/Rs) and cents (c) - work out shopping problems - solve word problems involving sharing, profit and loss 	<ul style="list-style-type: none"> - solve word problems involving wages, foreign currencies (Pounds Sterling, American Dollars) - convert Mauritian currency into foreign currencies and vice-versa - solve word problems involving local and foreign currencies

Topics	Essential Learning Competencies	Desirable Learning Competencies
2.6 Time	<ul style="list-style-type: none"> - use the units: year, week, day, hour, minute, second - use time on the 12-hour and 24-hour clocks - convert units of time from one to another - use the calendar - understand the terms: common and leap years - perform the four fundamental operations on time - solve word problems involving <ul style="list-style-type: none"> (i) time (ii) the calendar 	<ul style="list-style-type: none"> - use Greenwich Mean Time - solve harder word problems on time and calendar
2.7 Speed		<ul style="list-style-type: none"> - understand and use the term speed - use the units: metres/second (m/s) and kilometres/hour (km/h). Conversion from km/h to m/s and vice versa is not required. - solve word problems on speed
3. SETS	<ul style="list-style-type: none"> - use set notation and symbols - understand the concepts of universal set, union and intersection of two sets, subsets, cardinal number of a set - represent a given universal set and any two subsets on a Venn diagram - use Venn diagrams to solve simple survey problems (universal set and two subsets) 	
4. GEOMETRY	<ul style="list-style-type: none"> - use and interpret the terms: angles (acute, obtuse, straight, reflex, right), degrees, turns - understand the points of the compass - understand the term bilateral (line or mirror) symmetry - recognise and name isosceles, equilateral and right-angled triangles - recognise and name quadrilaterals (rectangle, square, parallelogram, rhombus, trapezium, arrowhead, kite), pentagon, hexagon 	<ul style="list-style-type: none"> - use the property that sum of angles of a triangle is 180° - find sum of interior angles of polygon up to 6 sides - understand and use the terms: centre, radius, diameter, circumference of a circle

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GEOMETRY <i>(continued)</i>	<ul style="list-style-type: none"> - solve simple word problems involving angles, bilateral symmetry and points of the compass 	<ul style="list-style-type: none"> - use the relation diameter = $2 \times$ radius - solve harder problems involving angles
5. GRAPHS	<ul style="list-style-type: none"> - use, draw and interpret pictogram, bar chart, pie chart - solve word problems involving pictogram, bar chart, pie chart 	<ul style="list-style-type: none"> - understand the terms: axis (axes), origin, coordinates, ordered pairs - state coordinates of a given point in a plane - locate a point with given coordinates - interpret and draw line graphs - solve harder word problems on charts/graphs

D. DESCRIPTION OF PAPER**SECTION A**

There will be 50 questions worth 60 marks as follows:

15 very-short-answer questions
(15 marks)

30 multiple-choice items
(30 marks)

5 short-answer questions
(15 marks)

SECTION B

There will be 5 open-ended/structured questions which may consist of more than one part. The questions will not necessarily carry the same weightings.
(40 marks)