DEPARTMENT OF EDUCATION

Papua New Guinea

CERTIFICATE OF BASIC EDUCATION EXAMINATIONS

MATHEMATICS

03rd November 2010

Time allowed: 3 hours

Candidates are advised to fully utilize the allocated time.

INSTRUCTIONS TO CANDIDATES:

(To be read out by the external invigilator before the start of the examination)

There are 50 questions in this paper. Attempt ALL questions even if you are not so sure of some of the answers.

The Examination is divided into three parts:

PART A:	**25 x Multiple-Choice questions**	**(25 marks)**
PART B:	**20 x Short –Answer questions**	**(20 marks)**
PART C:	**1 x Extended Answer question**	**(5 marks)**

The Answer Sheet is placed in the middle of the Examination Booklet. Take out the Answer Sheet from the Examination Booklet.

Write your candidate number, your name, school name and province name in the space given on the **Answer Sheet**. The invigilator will tell you what to write.

For each question in **PART A** choose the best answer and write its LETTER in the space given on the **Answer Sheet**.

For each question in **PART B** work out the answer and write the answer in the space provided on the **Answer Sheet**.

If you find a question very difficult, do not spend too much time thinking about it. Leave the question out and go on with the rest of the paper. If you have time in the end, return to the difficult questions and think about them more carefully.

Write your answers in BLUE or BLACK ink (pen or biro).

If you decide to change an answer, make your correction as shown below so that it is clearer to the markers what your final answer is. Do NOT use correction fluid on your answer sheet.

Q. 4 ⬚B̸ C

Hand in BOTH the Answer Sheet and the papers used for rough work at the end of the examination.

Extra time will NOT be allowed to complete the examination under any circumstances.

DO NOT TURN OVER THIS PAGE AND DO NOT WRITE UNTIL YOU ARE TOLD TO START.

SECTION A (QUESTIONS 1 TO 25)

Answer these questions by writing A or B or C or D representing the correct answer.

QUESTION 1

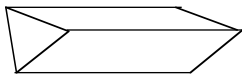$10 + 3 \times 5 - 20 =$

A.   65   B.   45

C.   15   D.   5

QUESTION 2

i   ii   iii
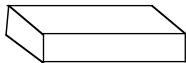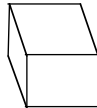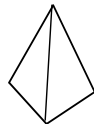
iv   v   vi

Which of the above figures are prisms?

A.   i , ii and iii   B.   ii, iv and v

C.   i, iii and vi   D.   i, iii, iv

QUESTION 3

What is the highest common factor of this expression $2x^2 + 6xy$?

A. $2x$ B. $3x$

C. $2x^2$ D. $3x^2$

QUESTION 4

Simplify $2 \times 2a^2 \times 2a^2$

A. $8a^2$ B. $2a^4$

C. $8a^6$ D. $8x^5$

QUESTION 5

Fiji time is 2 hours ahead of PNG time. A plane leaves Port Moresby at 4:00 am and flies for 5 hours to Suva.

At what time (Fiji time) does the plane arrive in Suva?

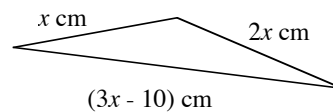A.   9:00 am   B.   10:00 am

C.   11:00 am   D.   12:00 pm

QUESTION 6

$3x - 4 = 32.$

What is the value of x?

A.   12   B.   36

C.   84   D.   108

QUESTION 7

x cm $2x$ cm

$(3x - 10)$ cm

Given that $x = 10$

What is the perimeter of the triangle above in centimetres?

A.   40   B.   50

C.   60   D.   70
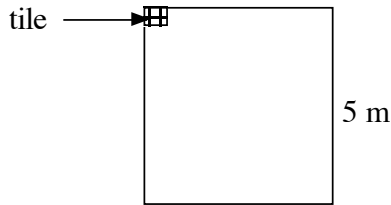
QUESTION 8

Warndia was paid K375.25 for working 25 hours.

What was his hourly pay?

A.   K15.00   B.   K15.01

C.   K15.02   D.   K15.10

QUESTION 9

The big square in the diagram indicates a bathroom floor of sides 5 m. The shaded area is a small square tile of sides 20 cm.

tile ⟶ ⊞

5 m

How many tiles will be needed to cover the bathroom floor?

A.   2500

B.   1250

C.   865

D.   625

QUESTION 10

A gardener harvested 55.75 kg of kaukau.

What is the weight of this kaukau to the nearest 10 kg?

A.   56

B.   58

C.   59

D.   60

QUESTION 11

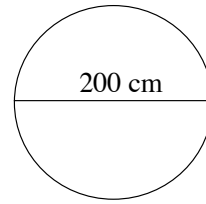On a map the distance between village P and village Q is 12 cm.

The scale on the map is 1 cm = 15 km.

What is the actual distance in km between village P and village Q?
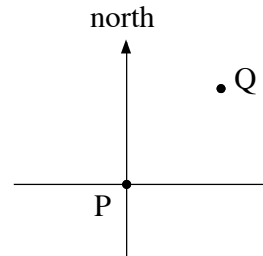
A.   183

B.   182

C.   181

D.   180

QUESTION 12

Given that $A = \pi r^2$, use $\pi = 3.14$ to find the area of the circle below in cm^2.

200 cm

A.   3.14

B.   62.8

C.   314

D.   628

QUESTION 13
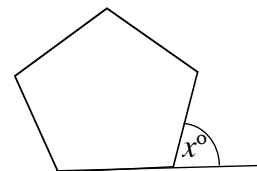
The diagram shows two places, P and Q.

north

• Q

P

Which statement correctly describes the locations of P and Q?

A.   P is north east of Q

B.   P is south west of Q

C.   Q is north west of P

D.   P is directly south of Q

QUESTION 14

The diagram shows a regular pentagon.

$x°$

What is the value of the angle x?

A.   1440

B.   360

C.   144

D.   72

QUESTION 15

Simplify $36a^3 \times \frac{1}{4}a^2$

A. $18a^9$ B. $9a$

C. $9a^5$ D. $36a^5$

QUESTION 16
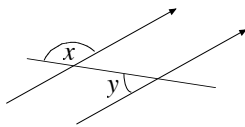
A pipe has a length of 1 m and a diameter of 14 cm.

How many mL of water would it hold if it was full?

Hint: Use $\pi = \frac{22}{7}$.   *$1\ cm^3 = 1\ mL$*

A.   31,800   B.   15,400

C.   8,400   D.   154

QUESTION 17

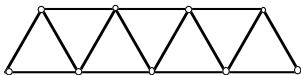The diagram shows two parallel lines and a transversal with the angles x and y as shown.

Which of the relationships is true for x and y?

A. $x° + y° = 180°$ B. $x° + y° = 90°$

C. $x° = y°$ D. $x° - y° = 90°$

QUESTION 18

Nainokop uses matchsticks to make triangle patterns as show below.
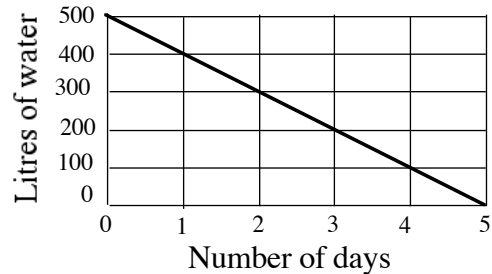

The pattern is $m = 2t - 1$ where m is the number of matchsticks used and t is the number of triangles formed.

How many matchsticks would be used to make 15 triangles?

A.   7   B.   15

C.   30   D.   31

Use this graph to answer Questions 19 and 20

The graph shows how much water a family uses per day.

QUESTION 19

How many litres of water were used in the first 3 days?

A.   100   B.   200

C.   300   D.   400

QUESTION 20

If the family uses water at the same rate, how much water will be used in the month of April?

A.   15,000   B.   10,000

C.   5,000   D.   3,000

QUESTION 21

A PMV carrying 36 passengers drove to a village. At the first bus stop, 11 passengers got off and 6 new passengers got on. At the second stop 20 got off and 2 got on. On the third stop everybody got off the PMV.

How may passengers got off at the third stop?

A.   75   B.   39

C.   18   D.   5

QUESTION 22

Study the pattern below and answer the question that follows

$(r^2 - x^2) = (r - x)(r + x)$

$(a^2 - b^2) = (a - b)(a + b)$

Calculate the value of $(50^2 - 49^2)$

A.   1   B.   10
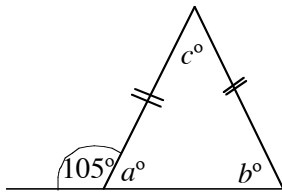
C.   99   D.   100

QUESTION 23

The circumference of a circle is 220 cm.

Note that $\pi = \dfrac{22}{7}$ and $C = 2\pi r$

What is the radius of the circle in cm?

A.   22   B.   35

C.   70   D.   154

QUESTION 24

Find the size of angle c.

A.   130°   B.   105°

C.   75°   D.   30°

QUESTION 25

Nindi worked 3 hours and Wale worked 2 hours at the school. The headmaster pays them K15.00 to share according to the hours they worked.
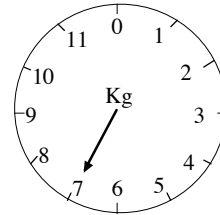
How much will Wale receive?

A.   K3.00   B.   K6.00

C.   K9.00   D.   K12.00

SECTON B: (Questions 26 to 45)

Write the correct answer next to the question number on your ANSWER SHEET. All rough work must be done on a separate answer sheet.

QUESTION 26

The scale shows the weight of Peter's oranges.

How much will Peter receive if the price of oranges is K3.50 per kg?

For Questions 27 and 28, refer to the information below.

MONTH	RAINFALL (mm)	TEMPERATURE (°C)
JANUARY	103.4	18.5
FEBRUARY	111	18.6
MARCH	129.7	14.6
APRIL	123	11.4
MAY	129.2	9.2
JUNE	131	11.4

QUESTION 27

What is the wettest month for Goroka?

QUESTION 28

What is the difference in temperature between the wettest and the driest month?

QUESTION 29

The distance between Bou and Garo village is 20 km. A truck travels along that road at a speed of 80 km per hour.
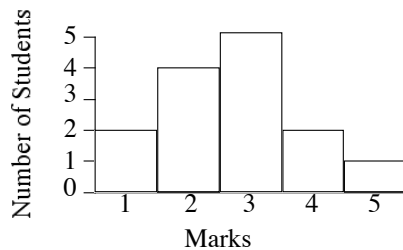
How many minutes will it take the truck to travel from Bou to Garo?

QUESTION 30

John Bought a carton (48 tins) of tinned fish for K132.00. He sold each tin of fish for K5.00.

How much profit did John make from selling all the tinned fish?

Questions 31, 32 and 33 refer to the graph below.

QUESTION 31

How many students sat for the test?

QUESTION 32

What is the mode for the test?

QUESTION 33

What is the mean of the test?

QUESTION 34

From a 1.5 Litre bottle of coke, Moses drank three quarters of it in the morning.
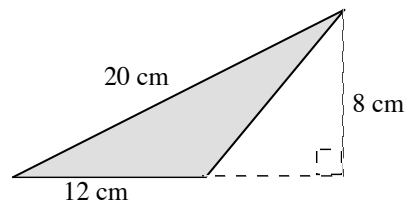
How many millilitres of coke was left?

QUESTION 35

What percentage of the rectangle above is shaded?

QUESTION 36

Calculate the area of the shaded triangle below and give your answer in cm^3.

For QUESTONS 37 and 38, refer to the table below

The table shows how much Gana spent at the market.

ITEM	QUANTITY	COST
Coconut	8	K4.00
Taro	10	K10.00
Bananas	20	K2.00

QUESTION 37

What is the unit price of a coconut?

QUESTION 38

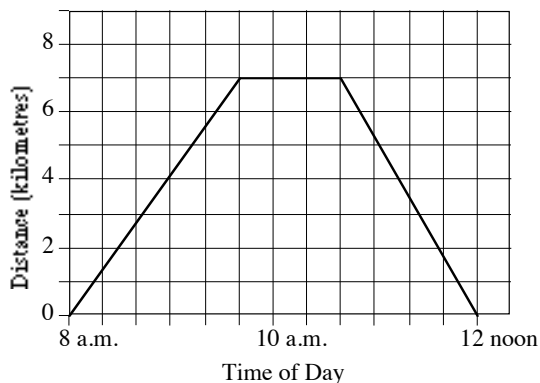Adam decides to by 1 coconut and 2 taros only.

How much would he spend?

QUESTION 39

$\frac{3}{x}$ and $\frac{27}{45}$ are equivalent fractions.

What is the value of x?

Questions 40 and 41 refer to the travel graph below.

The travel graph shows Loi's trip from his town to his village and back.

QUESTION 40

What was the total distance in km travelled by Loi?

QUESTION 41

How many minutes did it take for Loi to return to town?

Questions 42 and 43 refer to the information in the table below.

The table below shows the number of students in Grade 8 in Asasha Primary School.

Class	number of boys	number of girls
8 A	20	26
8 B	30	24

QUESTION 42

What is the total number of grade 8 students in the school?

QUESTION 43

What percentage of the grade 8 students are 8A girls?

QUESTION 44

Given that:

4 leaves = 1 stick and 3 sticks = 1 stone.

How many leaves are equal to 3 stones?

QUESTION 45

Wanawa is two years older than Aulong. Hafal is 17 years younger than Aulong.

If Hafal is 34 years old, how old is Wanawa?

SECTON C: EXTENDED RESPONSE
This question is worth 5 marks.

QUESTION 46

The table below shows the number of children in 5 families in a small village.

Families	A	B	C	D	E
No. of children	3	5	4	2	1

Draw a column graph on your answer sheet to show the above information.

Marks will be awarded for:

1. Families on x axis

2. Number of children on y axis

3. Correctly plotting the data

4. What is the total number of children in the village?

5. What is the average number of children per family?

END OF EXAMINATION