DEPARTMENT OF EDUCATION

CERTIFICATE OF BASIC EDUCATION EXAMINATIONS

MATHEMATICS

Tuesday

28 October 2014

Time allowed: 3 hours

(8:30am – 11:30 am)

NO EXTRA TIME

(NO OTHER TIME)

Candidates are advised to fully utilise the allocated time

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INSTRUCTIONS TO CANDIDATES:

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

There are **45** questions in this paper worth **1 mark each** and **1** question worth **5 marks.** Attempt ALL questions, even if you are not sure of some of the answers.

The Examination is divided into three parts:

PART A: **Multiple Choice (Questions 1 to 25)**   **25 marks**

PART B: **Short Answers (Questions 26 to 45)**   **20 marks**

PART C: **Extended Response (Question 46)**   **5 marks**

The Answer Sheet is part of the Examination Booklet. Take out the middle pages and remove the Answer Sheet by tearing along the perforation. You may use the blank sheet for rough work.

Write your province code, school code, candidate number, your name and school name in the space provided on the **Answer sheet**.

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

For each question in **PART B** and **PART C** 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 and go on with the rest of the paper. If you have time at 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 clear to the markers what your final answer is. Do NOT use correction fluid on your answer sheet.
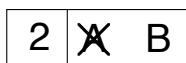
Do NOT use calculators to work out your answers.

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

THE PENALTY FOR CHEATING OR ASSISTING OTHERS TO CHEAT IN NATIONAL EXAMINATIONS IS NON-CERTIFICATION.

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

PART A: **(Questions 1 - 25)** **1 mark each**

Choose the best answer for each question and write the letter A or B or C or D in the space next to the question number on the ANSWER SHEET.

QUESTION 1

Which of these fractions is the largest?

A. $\dfrac{1}{6}$ B. $\dfrac{1}{5}$ C. $\dfrac{1}{4}$ D. $\dfrac{1}{3}$

QUESTION 2

How many years is 60% of a century?

A. 6 B. 60 C. 600 D. 6 000

QUESTION 3

Round 3,499 to the nearest hundred.

A. 3,400 B. 3,490 C. 3,495 D. 3,500

QUESTION 4

50.263 rounded to 2 decimal places is

A. 50.00 B. 50.25 C. 50.26 D. 50.27

QUESTION 5

In simple fraction, 60% is

A. $\dfrac{2}{5}$ B. $\dfrac{3}{5}$ C. $\dfrac{4}{5}$ D. $\dfrac{3}{10}$

QUESTION 6

Simplify, $5^2 \times m^2$.

A. $7m^2$ B. $10m^2$ C. $25m^2$ D. $500m^2$

QUESTION 7

Simplify $6a^6 \div 2a^2$

A. $3a^4$ B. $3a^3$ C. $8a^4$ D. $8a^3$

QUESTION 8

What will be the new price of a phone costing K270.00 if it is reduced by $\dfrac{1}{3}$?

A. K90.00 B. K135.00

C. K180.00 D. K200.00

QUESTION 9

Which fraction is equivalent to $\dfrac{98}{42}$?

A. $\dfrac{49}{22}$ B. $\dfrac{14}{6}$ C. $\dfrac{147}{84}$ D. $\dfrac{7}{6}$
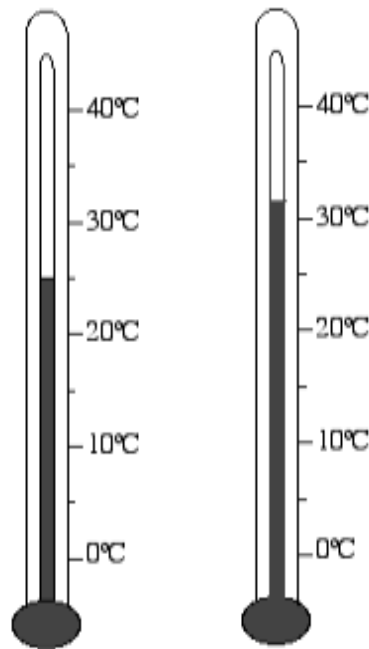
QUESTION 10

Find the product of 18 and 37 and round off the answer to the nearest hundred.

A. 500 B. 600 C. 700 D. 800

QUESTION 11

The maximum temperatures for Mt Hagen and Madang at mid-day on a certain day are shown below.

What is the difference in temperatures between the two towns?

A. 5°C B. 7°C C. 9°C D. 11°C

QUESTION 12

Calculate the sum of $2\dfrac{1}{2}$ and $3\dfrac{5}{6}$.

A. $6\dfrac{1}{3}$ B. $5\dfrac{5}{12}$ C. $6\dfrac{1}{5}$ D. $5\dfrac{3}{4}$

QUESTION 13

Singapore is 2 hours behind PNG time. Jeff is in PNG and calls his brother in Singapore at 2200 hours PNG time.

What time is it in Singapore?

A. 8 am   B. 8 pm   C. 10 am   D. 10 pm

QUESTION 14

Four students shared 3.56 litres of mango juice equally. How many litres did each student get?

A.   0.0809   B.   0.089
C.   0.809   D.   0.89

QUESTION 15

A 2 litre drink was shared between 5 students.

How many millilitres of drink did each student drink?

A.   0.4   B.   4   C.   40   D.   400

QUESTION 16

In a long jump competition Peter jumped 3m more than Andrew.

Which statement below is correct?

A.   Andrew jumped 1m while Peter jumped 3m.

B.   Peter jumped 1m while Andrew jumped 3m.

C.   Andrew jumped 2m while Peter jumped 5m.

D.   Peter jumped 2m while Andrew jumped 5m.

QUESTION 17

A price list of goods collected by a student is as follows; K3.40, K6.95, and K5.25.

What is the total cost of these goods rounded off to the nearest ten kina?

A. K10.00   B. K15.60   C. K16.00   D. K20.00

QUESTION 18

Which of the following pair of angles are complimentary?

A.   20° and 25°   B.   30° and 60°

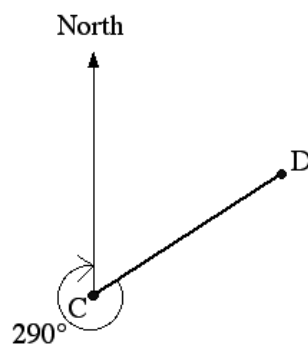C.   60° and 120°   D.   120° and 240°

QUESTION 19

Simplify $7x + 3y - 4$ when $x = 4$ and $y = 8$.

A.   38   B.   48   C.   49   D.   58

QUESTION 20

What is the bearing of position D from position C?

A.   050°

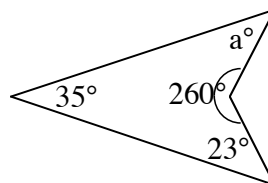B.   070°

C.   220°

D.   140°

QUESTION 21

The scale on a map is 1cm = 120 km. The distance measured on the map between Lae and Mt. Hagen is 2.5cm.

What is the actual distance in kilometres?

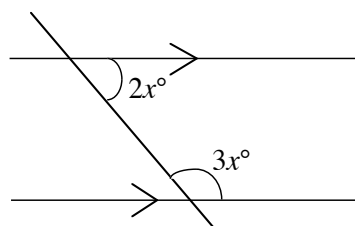A.   240   B.   250   C.   300   D.   350

QUESTION 22

What is the value of a in the figure below?

A.   42   B.   65   C.   77   D.   202

QUESTION 23

Find the value of x in the diagram below

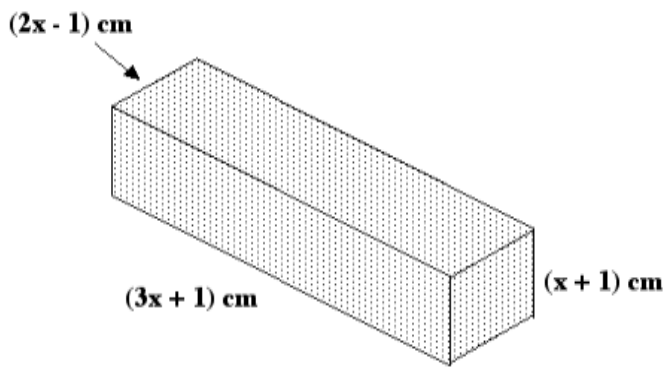

A.   36   B.   72   C.   108   D.   144

QUESTION 24

1 cm = 0.3937 inch. Peter buys a pipe of length 3.937 inches.

How long is the pipe in centimeters?

A.   0.1   B.   1   C.   10   D.   100

QUESTION 25

If $x = 3$, calculate the volume of the rectangular box shown in cubic centimetres.

(2x - 1) cm

(3x + 1) cm

(x + 1) cm

A. 300   B. 290   C. 250   D. 200

PART B: Questions 26 - 45)   1 mark each

For each question work out the correct answer and write it in the space provided on the ANSWER SHEET.

QUESTION 26

At point 0, a frog jumped 2 places in the positive direction. It was then kicked 5 places in the negative direction.
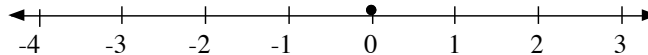
Where on the number line will it end?

QUESTION 27

What is the missing number x in this number sequence?

$$1, 4, 9, 16, x, 36, 49, 64, …………$$

QUESTION 28

The daily rainfall reading in a week for Wewak was tabulated as shown.

Days	Su	Mo	Tu	We	Th	Fr	Sa
Rainfall (mm)	200	350	200	350	200	315	260

What was the mode rainfall in millimetres?

QUESTION 29

Lina and Tina caught a number of fish and shared them in the ratio 3:4.

How many fish would Lina get if Tina got 20?

QUESTION 30

John cut a pie into 8 equal pieces. If he gave 25% of the pie to Jenny than how many pieces did Jenny receive?

QUESTION 31

A car is travelling along a highway at a speed of 60km/hr.

How long will it take in hours to cover a distance of 180km?

QUESTION 32

John bought a mobile phone for K1500. After some time he decided to sell it for K1200.
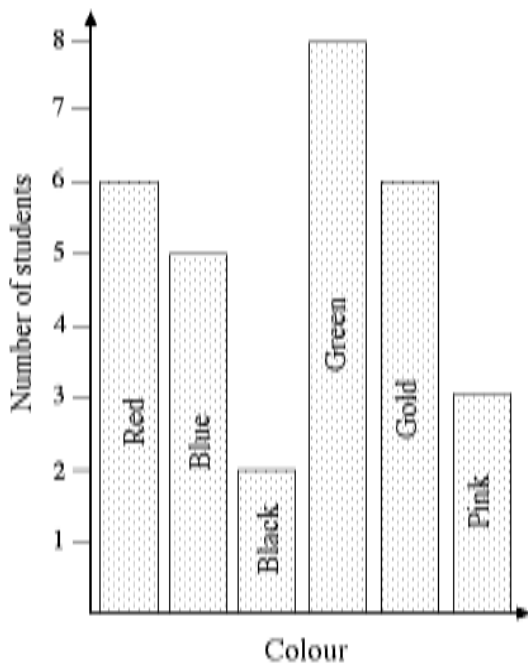
By what percentage was it reduced?

QUESTION 33

A fisherman earned K900.00 in a week from selling fish. He used 30% of his earnings to pay back a loan.

How much in Kina did he have left?

Refer to the graph of the favourite colour of students in a class and answer questions 34 and 35.

QUESTION 34

How many more students prefer Green to Black?

QUESTION 35

What percentage of students favour the colour red?

QUESTION 36

John borrowed money from a lender who charges K3 for every K10 borrowed.

How much interest will he pay in Kina if he borrows K150?

QUESTION 37

Express $\dfrac{81}{108}$ as a decimal.

QUESTION 38

At Jane's boarding school, 1hour and 30 minutes is allocated for night studies every weeknight.

One night Jane decided to spend 20% of that time on studying for her Maths test.

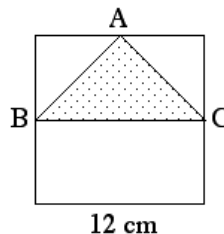How many minutes did she spend?

QUESTION 39

Air Niugini Cargo charges K5.50 per kilogram to send a package from Port Moresby to Alotau.

Gerald wants to send a 10kg package from Port Moresby to Alotau.

How much in Kina will he pay?

QUESTION 40

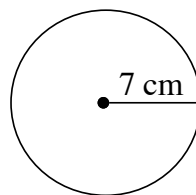A, B, and C are mid points of 3 sides of a square.

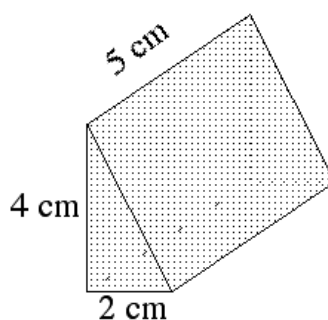Find the area of the triangle in square centimetres.

QUESTION 41

What is the circumference of the circle in centimetres?
(Use $\pi = \dfrac{22}{7}$)

QUESTION 42

Calculate the volume of the triangular prism shown in cubic centimetres.

QUESTION 43

Find x if, $\dfrac{1}{2}x + 1 = 13$.

Refer to the information below to answer questions 44 and 45.

A certain volume of concrete is made up of a mixture of 5 parts gravel, 3 parts sand and 2 parts cement.

QUESTION 44

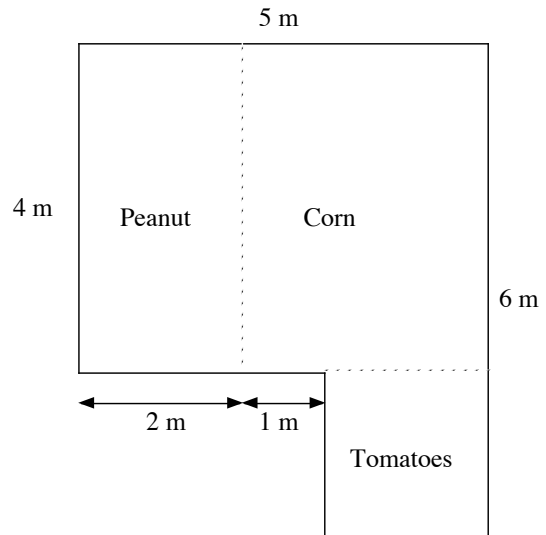If one part is 5000cm^3 then what is the volume of concrete produced?

QUESTION 45

What fraction is sand in the mixture?

PART C: **Question 46** **5 marks**

For each question work out the correct answer and write it in the space provided on the ANSWER SHEET

For Questions 46 refer to the diagram of Ruth's garden plot.

a) What is the total area of the garden in square meters?

b) How many lines of symmetry can be drawn through the tomato patch?

c) How long should the fencing wire be if she decides to fence the garden?

d) If the fencing material costs K20 per meter, then what would be the minimum cost to fence her garden?

e) How many times larger is the peanut patch than the tomato patch?

THE END