Phuentsholing Rigsar Higher Secondary School

ཕུན་ཚོགས་གླིང་རིག་གསར་འབྲིང་རིམ་སློབ་གྲྭ་གོང་མ།

Mid-Term Examination

ལོ་བརྗེད་ཀྱི་ཆོས་རྒྱུགས།

2024 ༢༠༢༤

CLASS: VII **WRITING TIME: 2 HOURS**

SUBJECT: Mathematics **FULL MARK: 80**

Alternate No: | | | | | | | | | | Class and Section: ____

Invigilator's Initial ____

Read the following instructions carefully:

1. There are two sections. Section **A** (30 marks) and **B** (50 marks).
2. **Do not** write for the first 15 minutes. This time is to be spent in **reading** the questions and checking the printed pages. Inform the invigilator if there is any problem with the question booklet.
3. Be sure to write your **Alternate Number** and Section on the top of your question booklet.
4. Write your multiple-choice question in question paper and Section B in the answer sheet. The mark for each question is given in the **brackets**.
5. You have **two** hours to finish the test. Make good use of the given time.
6. This booklet contains 9 pages

Marks Obtained:

	Sec A	**Section B**					**Total**
Q .No.	**1**	**2**	**3**	**4**	**5**	**6**	
FM	**30**	**10**	**10**	**10**	**10**	**10**	**80**
Marks							
Initial							

SECTION A

Question 1 **Answer all the questions** **[15 ×2 = 30 marks]**

Direction: For each question, there are **FOUR** responses: **A, B, C** and **D**. Choose the corresponding alphabet of your response and **CIRCLE** it neatly. **NO** score will be awarded if you circle more than one.

I. Nima ran 10 km of the track, Rinzin ran $7\frac{1}{3}$ km. How much more distance did Nima run than Rinzin?

A $\frac{10}{3}$

B $\frac{9}{3}$

C $\frac{8}{3}$

D $\frac{6}{3}$

II. The following numbers are divisible by 3 EXCEPT

A 387

B 360

C 254

D 252

III. Create the pattern rule using the data given in the table.

A 2F+4

B 2F+3

C 2F+2

D 2F+1

Figure number	Number of shapes
1	6
2	8
3	10

IV. What is the GCF of (25, 35 and 40)?

A 20

B 15

C 10

D 5

V. The lowest term of the ratio 14:8 is

A 7:4

B 7:5

C 7:6

D 7:7

VI. Order -2, +5, +3, 0 and -4 from least to greatest?

A $-2, -4, 0, +3, +5$

B $-2, -4, 0, +5, +3$

C $-4, -2, 0, +3, +5$

D $-4, -2, 0, +5, +3$

VII. When Zangmo divided the fraction $\frac{3}{11}$, she got the answer in decimal form. Which one is the correct quotient?

A 0.27

B 0.28

C 0.31

D 0.32

VIII. A class has 60 students. 55% of the students are girls. How many girls are there?

A 32

B 33

C 34

D 35

IX. Every day, Karma walks a 9 km path and Dorji walks a 6 km path. Each boy walks the same total distance. What is the least number of times each boy could be walking his path?

A 3

B 9

C 12

D 18

X. What is the difference of these integers $(+4) - (-6)$

A 10

B 2

C -2

D -10

XI. What two integers are 7 units away from +1?

A +6, -8

B +5, -9

C +8, -6

D +9, -5

XII. Lhamo's heart beat 22 times in 20 seconds. What is her heart rate in beats/ minute

A 77

B 66

C 33

D 22

XIII. Find the values when $x = 5$ for the expression $2 - x^2$

A -23

B 23

C -7

D 7

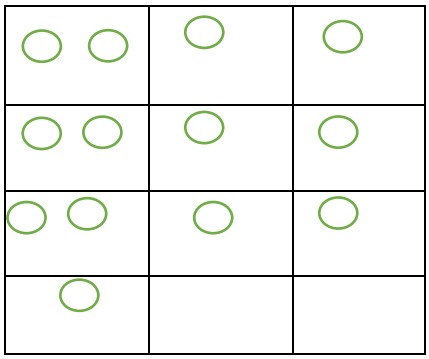
XIV. The given model shows

A $\frac{1}{4} + \frac{1}{3}$

B $\frac{3}{4} + \frac{1}{3}$

C $\frac{1}{4} + \frac{2}{3}$

D $\frac{3}{4} + \frac{2}{3}$



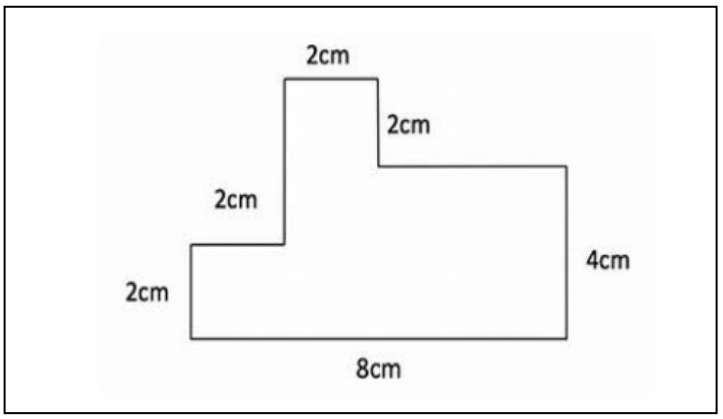
XV. Perimeter of the given shape is

A 22 cm

B 24 cm

C 26 cm

D 28 cm



SECTION B [10 ×5=50 marks]

Answer all the questions

Question 2

a) Sonam sells apples in a market. She procures 742 pieces of apples. She then packs apples into smaller packets each containing 4 pieces. Will she have any leftover apples after packing them into those smaller packets? Use divisibility rules. **[3 marks]**

b) Write $5\times 10^6 + 8 \times 10^3 + 2\times10^2 + 1\times10^0$ in Standard form? **[1 mark]**

c) Pema has 5 bags, each bags has 5 packets, and each packet contains 5 cup cakes. Show in exponents how many cup cakes are there in total. **[2 marks]**

d) A plant grows 3.6 metres every year. If it grows with same rate, how tall will it be after 2 years and 6 months? **[2 marks]**

e) Calculate $4.5 + (2.5^2 – 4.5) \div 0.5$ **[2 marks]**

Question 3

a) A truck was carrying $\frac{5}{6}$ full of manure. It delivered $\frac{1}{4}$ of the load to a farm. What fraction of a full truckload does the truck have now? **[2 marks]**

b) Lhamo spent $1\frac{3}{4}$ h on homework before dinner and $2\frac{1}{2}$ h after dinner. **[3 marks]**

i. How much time did she spend on homework altogether?

ii. How much more time did she spend on homework after dinner than before dinner?

c) Compare the given fraction using number line. **[3 marks]**

$1\frac{1}{4}, \frac{11}{6}$ and $\frac{5}{3}$

d) Write $\frac{1}{11}$ as decimal and then use it to find the value for $\frac{7}{11}$. **[2 marks]**

Question 4

a) In an archery contest, the ratio of kareys to total arrows shot was 12:50. **[3 marks]**

i. Write this ratio as a percent

ii. What percent were not kareys?

iii. Write ratio in fraction form.

b) A school has 200 students. 45% of the students are girls. **[3 marks]**

i. How many are girls?

ii. How many are boys?

iii. What percent are boys?

c) Sonam can walk 12 km in 2 h. **[2 marks]**

i. How far can he walk in 3 h, if he walks the same speed?

ii. How long will it take him to walk 9 km?

d) Express as a unit rate. **[2 marks]**

i. An elephant travelled 60 km in 3 hours.

ii. Sonam ate 10 pieces of chocolate in 2 hours

Question 5

a) Here are some usual low temperatures for December. Paro: –2ºC, Thimphu: –1ºC, Samtse: +8ºC, Wangdue: +6ºC, Gelephu: +3ºC. **[3 marks]**

i. Draw a number line and mark each temperature.

ii. Order the places from coldest to warmest?

iii. Find the difference between warmest and coldest temperature.

b) In Trashigang, the temperature fell by 16^0C in one day from a high of $+10^0$C. **[3 marks]**

i. What was the low temperature?

ii. Write a subtraction expression that describes this situation

iii. Write addition expression

c) Karma took 6 steps forward and 8 steps backwards. How far is Karma from the original position? **[2 marks]**

d) Gasa records a temperature of -7º C. The temperature further drops 3º C. What will be the new temperature? **[2 marks]**

Question 6

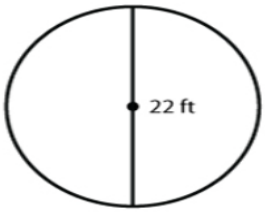
a) Simplify each. **[3 marks]**

i. $(3n + 2) + (-5n + 6)$

ii. $(6m - 3) - (4m + 5)$

b) Graph using the equation $y = 2x + 1$. **[3 marks]**

c) Find the circumference of the given circle. **[2 marks]**



d) Cheki is planning to plant a vegetable garden in her backyard. She has chosen a rectangular section of her yard for the garden. The length of this rectangular section is 12 m, and the width is 8 m. What is the area of the garden that she plans to use? **[2 marks]**

Measurmement formula and Relationship

Area

- Rectangle = $l \times w$
- Square = s^2
- Parallelogram = $b \times h$
- Triangle = $1/2 \times bh$
- Trapezoid = $1/2 \times h \times (a+b)$
- Circle A = πr^2
- rectangular prism = $2(h \times l + l \times w + w \times h)$

Volume

- Rectangular prism = area of base ×height

Perimeter and circumference

- Rectangle = $2(l + w)$
- Square = $4s$
- Circle = $2\pi r$

Pythagorean Theorem

C2 = a2 +b2 (c: hypotenuse side, a and b are other sides of a right triangle) GRAPH

Graph