

Mathematics

Writing Time : 2 Hours
Total Marks : 100

READ THE FOLLOWING DIRECTIONS CAREFULLY:

1. Do **not** write for the first **fifteen minutes**. This time is to be spent reading the questions. After having read the questions you will be given **two** hours to answer all questions.
2. In this **question paper**, you will find 25 questions in Section A and 5 questions in Section B. You must answer **all** the questions. Each question in Section A is worth **2 marks**.
3. All answers for Section 'A' and 'B' **must** be written in the answer sheets provided by the school.
4. Once the examination begins, you will not be allowed to ask questions, speak with others or move around.
5. If you finish before the time is over, close the Answer Booklet, and sit quietly.

DO NOT forget to write your name, class/section and the name of your school on the answer sheet(s).

IF YOU HAVE ANY QUESTIONS, ASK THEM NOW!

TURN PAGE

(15 Minutes is to be allowed for reading as well as for teachers on duty to explain the instructions)

SECTION A
25 Questions [50 marks]
Answer ALL questions

Direction: Each question in this section is followed by four possible choices of answers. Choose the correct answer and write it down in the answer sheet provided by the school.

1. If $D = \{a, b, c, d, e\}$ and $E = \{a, e, i, o, u\}$, then $n(A \cap B)$ is
 - A 10.
 - B 8.
 - C 5.
 - D 2.

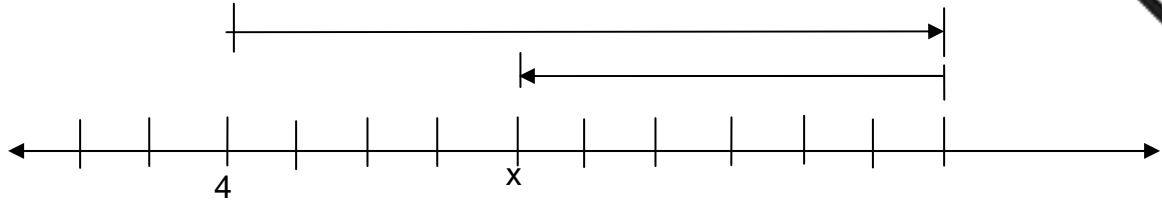
2. If $A = \{\Delta, X, O\}$, then what is the total number of subsets in set A?
 - A 8
 - B 7
 - C 5
 - D 3

3. Which one of the following is the set of prime numbers?
 - A $\{0, 1, 2, 3, 4\}$
 - B $\{1, 3, 5, 7, 9\}$
 - C $\{2, 3, 5, 7, 11\}$
 - D $\{2, 4, 6, 8, 10\}$

4. What is the value of $(+5 +^{-}5) \times^{-}4$?
 - A $^{-}20$
 - B $^{-}4$
 - C 0
 - D 1

5. What is the L.C.M of $2^2 \times 3^3 \times 5$ and $2^3 \times 3^2$?
 - A $2^2 \times 3^3$
 - B $2^2 \times 3^3 \times 5$
 - C $2^2 \times 3^2 \times 5$
 - D $2^3 \times 3^3 \times 5$

6. What is the value of x in the line diagram given below?



- A** 17
 - B** 14
 - C** 8
 - D** 4
7. If $p \in \mathbb{W}$, then $p + p + p + p + p$ is

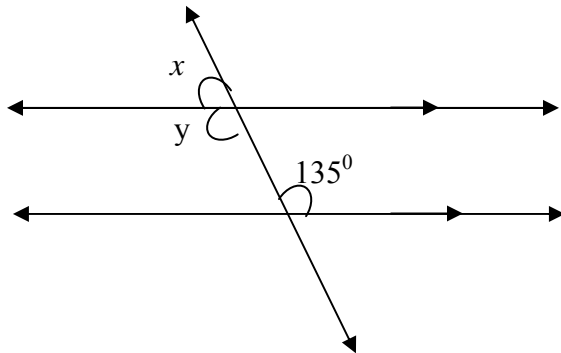
- A** p .
 - B** p^5 .
 - C** $5p$.
 - D** $\frac{p}{5}$.
8. Which one of the following factors is in ascending order?

- A** $\frac{7}{12}, \frac{2}{3}, \frac{6}{7}$
 - B** $\frac{7}{12}, \frac{6}{7}, \frac{2}{3}$
 - C** $\frac{2}{3}, \frac{6}{7}, \frac{7}{12}$
 - D** $\frac{6}{7}, \frac{2}{3}, \frac{7}{12}$
9. If $\frac{1}{2}$ is added to the sum of $1\frac{1}{4}$ and $1\frac{2}{3}$, then the result is

- A** $\frac{11}{12}$.
- B** $\frac{20}{12}$.
- C** $\frac{25}{12}$.
- D** $\frac{41}{12}$.

10. The decimal notation of $6 \times 10 + 7 \times 1 + 5 \times \frac{1}{10} + 3 \times \frac{1}{100}$ is
- A 6.753.
 - B 67.53.
 - C 675.2.
 - D 6752.0.
11. What is $2\frac{1}{2}\%$ of 40 kg?
- A 4 kg
 - B 3 kg
 - C 2 kg
 - D 1 kg
12. What is the percentage of the girls in a class having 15 girls and 25 boys?
- A 15%
 - B 37.5%
 - C 70%
 - D 80%
13. Which one of the following expressions is a binomial?
- A $6xy$
 - B $3x+y$
 - C $3x \times y$
 - D $3x+2y+11g$
14. Solve $(18x^2y^3 - 9x^3y^2) \div -3x^2y^2$.
- A $-6y+3x$
 - B $+6y-3x$
 - C $+9xy$
 - D $-9xy$
15. Simplification of $(2x-y)^2$ is
- A $2x^2+y^2$.
 - B $4x^2-4xy+y^2$.
 - C $4x^2+4xy-y^2$.
 - D $4x^2+4xy-2y$.

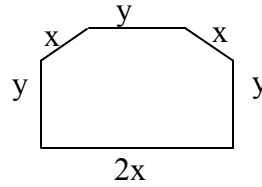
16. If the three angles of a triangle are $2x$, $3x$ and 60° , then find the value of x .
- A** 60°
B 48°
C 30°
D 24°
17. Which one of the following equations gives the value of p equal to 14?
- A** $+\frac{p}{7}-1=-3$
B $17-5p=7$
C $-\frac{p}{4}-2=6$
D $100=7p+2$
18. Six times a number is increased by 12. The result is 78. What is the number?
- A** 6
B 7
C 11
D 13
19. In the diagram given below, what is the value of the angles x and y ?



- A** $x = 130^\circ$ and $y = 180^\circ$
B $x = 45^\circ$ and $y = 135^\circ$
C $x = 90^\circ$ and $y = 130^\circ$
D $x = 135^\circ$ and $y = 45^\circ$

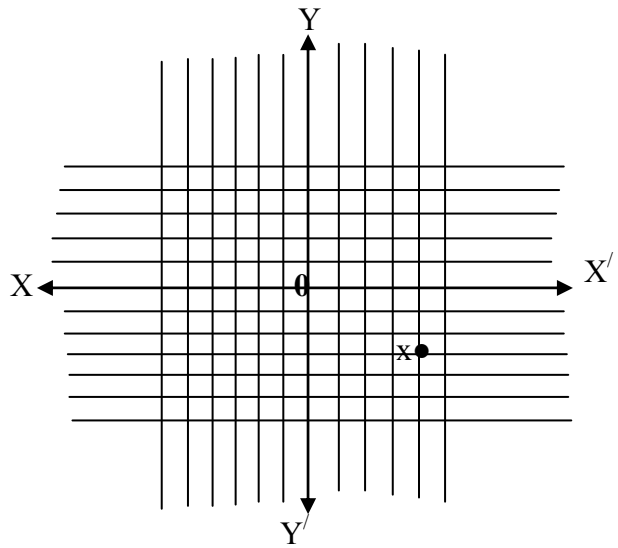
20. What is the perimeter of the diagram given below ?

- A $4x + 3y$
- B $3x + 3y$
- C $4x + 4y$
- D $2x + 2y$



21. In the graph below what is the ordered pair of point x?

- A $(-4, +3)$
- B $(+3, -4)$
- C $(+4, -3)$
- D $(+4, +3)$



22. If the total surface area of a cube is 96 cm^2 , then what is the area of one face of the cube?

- A 36 cm^2
- B 32 cm^2
- C 26 cm^2
- D 16 cm^2

23. What is the perimeter of a square whose area is 36 cm^2 ?

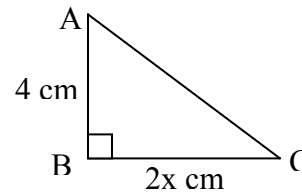
- A 12 cm
- B 18 cm
- C 24 cm
- D 36 cm

24. The table below shows the frequency distribution of the weights of the students. What percentage of students weigh 25 kg?

Weight	Frequency
10 kg	5
15 kg	7
20 kg	3
25 kg	5

- A** 15%
B 20%
C 25%
D 30%
25. In the diagram given below, $AB = 4$ cm and $BC = 2x$ cm. Find the area of the $\triangle ABC$.

- A** $2x$ cm²
B $4x$ cm²
C $8x$ cm²
D $16x$ cm²

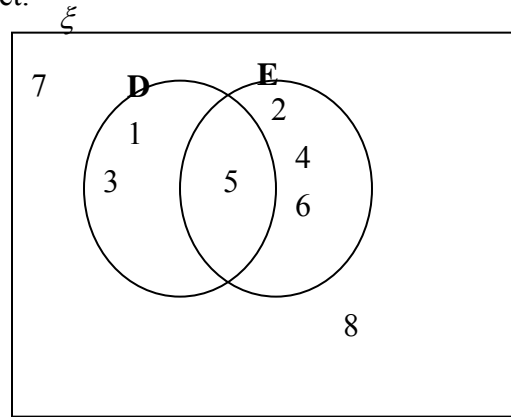


SECTION B
5 questions [50 marks]
Answer ALL questions

Directions: Answer the questions given below as directed. All answers should be written in the answer booklet provided by the school. The intended marks for each question is given in the brackets [].

Question 1.

- (a) (i) What number is an even prime? [2]
(ii) What number is neither prime nor composite?
- (b) From the diagram given below, [2]
(i) list the elements of the Universal set.
(ii) find $n(D \cup E)$.



- (c) Solve $1\frac{5}{6} \div 3\frac{2}{3} - \frac{1}{2}$. [2]
- (d) Round off 68907 to its nearest 1000 and 100 respectively. [2]
- (e) Solve $+3 \times +4 \times -7$. [2]

Question 2.

- (a) A dealer bought an article for Nu.120.00 and sold it at a profit of 40%. [2]
(i) What is his actual profit?
(ii) What is the selling price of the article?
- (b) (i) What is the absolute value of -16 ? [1]
(ii) What is the value of $21.081 - 14.69$? [1]
- (c) Subtract $4a + 3b + c$ from $-4b + 3a - c$. [2]

- (d) If $x = -1$, $y = -2$ and $z = 3$, then find the value of $\frac{4x - 3y + 2z}{4}$.
- (e) A boy had Nu.10.00. He spent Nu.3x on buying an exercise book, Nu.2x on buying a bottle of ink and saved Nu.5.00. [2]
Find
(i) x.
(ii) the price of a bottle of ink.

Question 3.

- (a) Draw a circle with the radius 3 cm and mark the center of the circle as O. Draw lines OA and OB touching the circle so that $\angle AOB = 60^\circ$. Extend the line from A to B. What is the name of the figure OAB? [3]
- (b) The following table shows the mark obtained by Ms. Zangmo in the final examination for class VI. Represent the information by a column graph. [2]

Subject	Dzongkha	Mathematics	Science	Social Studies	English
Marks	60	50	75	80	65

- (c) A car travels 75 km in $1\frac{1}{4}$ hours. How far will it travel in 1 hour? [2]
- (d) At a function there were men and women. $\frac{2}{3}$ were men and the rest were women. There were 15 women present. Find the total number of [3]
(i) people at the function.
(ii) men.

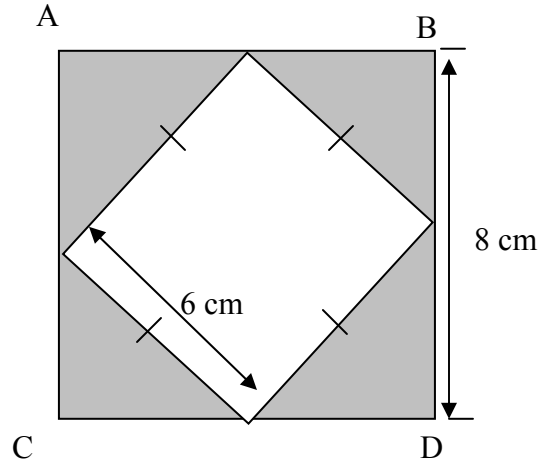
Question 4.

- (a) (i) Find the greatest number which will divide 351 and 497 leaving remainders 3 and 4 respectively. [2]
(ii) What is the H.C.F. of co-prime numbers? [1]
- (b) Write two equivalent fractions of $\frac{7}{11}$. [1]
- (c) 15 men can do a piece of work in 8 days. How long will 10 men take to finish the same work? [2]
- (d) In a class of 50 students, 40 like pork, 16 like beef and 6 like both pork and beef. [2]
Find the number of students
(i) who like only beef.
(ii) who take one type of meat.

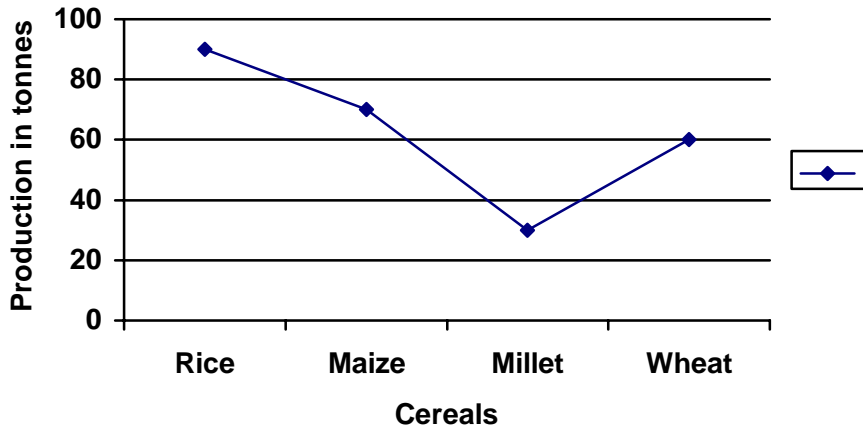
(e) Add $k^2 - 4k + 3$; $-7k^2 + 5k - 8$; $2k^2 - k + 5$.

Question 5.

(a) In the given figure, ABCD is a square. Calculate the area of the shaded portion. [2]



(b) The line graph given below shows the production of cereals in a certain year. [2]



- (i) How many tonnes of maize are produced?
- (ii) What is the total cereal production in a year?

(c) The area of a rectangle is 36 cm^2 . If its length is 9 cm, find the breadth of the rectangle. [2]

- (d) A series of talks were given for 5 days in a week in a school. The number of people on different days is given in the table given below.

Days of a Week	Monday	Tuesday	Wednesday	Thursday	Friday
No. of People Present	250	350	500	250	150

- Represent the information by pie chart. [2]
- (e) Define [2]
- (i) supplementary angles.
 - (ii) complementary angles.

