

Max. Marks 80

Duration 3 hours

Section A**(12 x 1 = 12 Marks)**

Q. 1. Select the correct answer in each of the following:

a) A triangle whose sides are of length 12 cm, 14 cm and 18 cm is called a

- i) Scalene triangle
- ii) Equilateral triangle
- iii) Right angles triangle
- iv) Isosceles triangle

b) If a , b and c are integers then, according to distributive law

- i) $a \times (b + c) = a + b \times a + c$
- ii) $a \times (b + c) = a \times b + a \times c$
- iii) $a \times (b + c) = a \times b \times a \times c$
- iv) $a \times (b + c) = a \times b - b \times c$

c) There are 10 red, 5 blue and 20 black balls in a bag. A ball is drawn from the bag without looking in to the bag. What is the probability of getting a blue ball?

- i) $1 / 10$
- ii) $20 / 35$
- iii) $1 / 7$
- iv) $2 / 5$

d) A number is chosen at random from 1 to 15. What is the probability that the number chosen is even?

- i) $4 / 15$

ii) $3/8$

iii) $7/9$

iv) $6/15$

e) Which of the following statements is true?

i) Each trapezium is a parallelogram

ii) All the rhombuses are squares

iii) Each parallelogram is a square

iv) Each square is a parallelogram

f) The integer $-3 - (-8)$ can be written as

i) $-3 + 8$

ii) $-3 - 8$

iii) $3 + 8$

iv) $3 - 8$

g) Mean of 12, 10, 8, 6, 9, 15, 11, 18, 10 is _____.

i) 22

ii) 11

iii) 10

iv) 33

h) Triangle PQR is a right angled triangle which is right angled at the vertex C. If the measures of the side $AB = 5$, $BC = 4$ then find the measure of the side AB

i) 3

ii) 1

iii) 2

iv) 9

i) The value of the variable x in the equation $2x + 5 = 21$ is

i) 6

- ii) 10
- iii) 9
- iv) 8
- j) Write the measure of an angle which is its own supplementary angle?
 - i) 50 degrees
 - ii) 90 degrees
 - iii) 40 degrees
 - iv) 25 degrees
- k) Find the perimeter of the rectangle whose length is of 15 cm and width is of 8 cm
 - i) 46 cm
 - ii) 23 cm
 - iii) 35 cm
 - iv) 48 cm
- l) Find the number of sides of a regular polygon whose each exterior angle has a measure of 40 degrees
 - i) 10
 - ii) 9
 - iii) 8
 - iv) 12

Section B

(12 x 2 = 24 marks)

- i) What letters of the English alphabet have reflection symmetry about –
 - a) A horizontal mirror
 - b) A vertical mirror
 - c) Both horizontal and vertical mirrors
- ii) Find the product using suitable property (a) $25 \times (-24) + (-14) \times (-63)$ (b) $18 \times 48 \times (-101)$
- iii) A farmer farms 800 apples in his farm every week and delivers them equally to 10 shops. The shopkeepers charge Rs.10 for every good apple but they have to give Rs.6 to

the customer if the apple comes out to be rotten. A shopkeeper could only earn Rs.250 despite selling all the apples. How many apples were rotten?

iv) State the number of lines of symmetry for the following figures:

a) A rectangle

b) A square

c) A circle

d) A scalene triangle

e) An isosceles triangle

f) An equilateral triangle

v) Nado bought a cricket bat worth Rs. 2000/- .His friend Frank on seeing Nado's cricket bat liked it a lot and offered him the best price he can afford for it at Rs. 1500. Nado, unwillingly had to sell his cricket bat to Frank as he was his best friend. Calculate:

a) The loss percentage that Nado had to bear

b) The amount of loss that Nado had to suffer

vi) A number consists of two digits in which the tens digit exceeds the units digit by 6. The number itself is equal to ten times the sum of digits. Find the number.

vii) Construct a triangle ABC where $BC = 4.2$ cm, angle B = 130 degrees, angle C = 40 degrees. Also, measure the angle A and name the type of triangle it is

viii) Ranu has a bicycle whose each wheel has a radius of 70 cm. She covers a distance of 2km 450 m from his school to home. Find out the number of complete revolutions that each wheel of the bicycle makes.

ix) In a parallelogram two adjacent sides measures 12 cm and 8 cm. If the altitude corresponding to the side of length 12 cm is 6 cm long, find the length of the altitude corresponding to the side of length 8 cm

x) Solve for x: $2x - 1 / 5 = x + 8 / 20$

xi) The numbers of oranges in a garden on 30 days of a month are recorded as below. Prepare a frequency table for it. 35, 48, 42, 25, 60, 56, 55, 45, 40, 50, 52, , 50, 60, 68, 62, 55, 42, 65, 62, 56, 45, 50, 60, 62, 45

xii) A rectangular park is 15 m long and 11 m wide. A path 4 m is constructed outside the park. Find the area of the path.

Section C**(8 x 3 = 24 marks)**

i) Construct the algebraic expression for the following:

- a) Three times a number x increased by 8
- b) Product of variables z , b and c subtracted from 80
- c) One third of variable c added to 6
- d) Cube root of variable t when multiplied with 36 and then subtracted from 100
- e) Variable p when multiplied to itself and then added to 20
- f) Two times variable x added to 8 and the whole divided by 5

ii) a) Express 36×243 as a product of prime factors

b) Write 12388 in standard form

iii) The ratio of milk : water in two vessels is 5:4 and 8:1 respectively. What ratio of contents of the two vessels should be mixed so that ratio of milk : water in resulting mixture is 5:4?

iv) a) Farmer John sells freshly picked pears on a Wednesday. He sold $\frac{1}{4}$ th (in weight) of all his pears in the first hour. In the second hour, he sold 15 pounds and he has 112 pounds left. How many pounds of pears does he have at the beginning of the day?

b) Ted and Anita make 4 gallon of mock tail each. Ted's mock tail has a soda to orange juice ratio of 4:1. Anita's mock tail has a soda to orange juice ratio of 7:2. They decide to mix the 8 gallons of mock tail together in a larger container. What is the soda and orange juice ratio at the end in the mixture?

v) Rado the dog runs along a railroad. A train that is 250 meters long passes her in 24 seconds. The speed of the train is 25 meters per second. Find out the speed of the dog Rado at which he runs along the rail road.

vi) A dumper was dumping wastes from a locality to the waste area. The first day, it dumped $\frac{2}{5}$ th of the entire pile of the waste piled up at the locality. The second day it dumped $\frac{4}{9}$ th of the remaining of the waste piled up at the locality. There are 1500 pounds of waste left after the two dumpings. How much fertilizer waste was there initially before the dumping started?

vii) Wendy gave her final exam consisting of several subjects. The average score she obtained which did not include Math is 85. Also, the average score she obtained if Math would have also been included is 95. The score she obtained in the subject Math is 100. Find out the total number of subjects in which she gave her exam

b) In the month of January the price of petroleum was \$ 5.80 per liter. The price rose by a percentage of 20% in the next month February followed by a drop in the percentage of 15% in the following month March. Find out the final price of petroleum after consecutive rise and fall in price in the month of April

viii) a) Chi Lu's birthday is on February 25th. If January 1st of 2009 is Thursday, which day of the week is Chi Lu's birthday in the year 2018?

b) Brian weighed 135 lbs. He lost 15 lbs in the first week at the weight loss camp. He lost another 5 lbs the 2nd week. What percentage of his weight did he lose in these 2 weeks?

Section D

(5 x 4 = 20 marks)

i) Ayan visits a medical store and purchases the following articles: a. 2 inhalers for Rs. 500 each, sales tax at the rate of 15% b. One pair of Air Purifier mask at Rs. 700 each, sales tax at the rate of 10% c. Two strips of Multi Vitamin capsules at Rs. 138 each, sales tax at the rate of 5% d. One bottle of Iron capsules at Rs 380, sales tax at the rate of 4% and baby's diaper at Rs. 700, sales tax at the rate of 3%

ii) A bag consists of balls colored blue, black, orange and purple. The number of balls of each colour is the same. A ball is drawn from the bag. Calculate the probability of drawing a blue ball, a black ball, an orange ball and a purple ball at the same time. A ball is drawn from the bag. Calculate the probability of drawing a blue ball, a black ball, an orange ball and a purple ball with and without replacement.

iii) a) Two cities A and B are 950 miles apart, Train Xu travels from City A to City B at speed of 45 mile per hour. Train Li travels from City B to City A at speed of 80 miles per hour. Train Xu starts at 10:00 am from City A and Train Li starts at 14:00 pm from City B. At what time shall the two trains meet?

b) A cylindrical water tank with a diameter of 20 cm and a height of 60 cm has a water level of 10 cm. If a smaller solid metal cone with a diameter of 8 cm and a height of 40 cm is placed into the tank, what is the water level?

iv) Classify the following statements under following categories certain to happen, impossible to happen, may or may not happen. Prepare a neat table and mark each statement under appropriate headings.

- a. Getting 5 when a die is thrown
- b. Passing Math exam by you
- c. Having White House in United States of America
- d. Getting the sum of angles of a rectangle to be 360°
- e. Sun rising from the west
- f. India winning a cricket match against South Africa

v)

a) $-(-134) - (-150) + (-51) + (-1) - (-15) + 178 =$

b) Abram's father is 5 times older than Abram and Abram himself is twice as old as his brother Tuhin. In three years time, the sum of their ages will be 58. Find out the present age of Abram