

First term = $a = 6$, common difference = $d = 3$,

$$S_{27} = ?$$

$$S_n = \frac{n}{2} [\square + (n - 1)d] \text{ -- formula}$$

$$S_{27} = \frac{27}{2} [12 + (27 - 1)\square]$$

$$= \frac{27}{2} \times \square$$

$$= 27 \times 45$$

$$\therefore S_{27} = \square$$

ii. Solve the following quadratic equation: $x^2 + 8x + 15 = 0$ [2]

iii. A box contains 5 red, 8 blue and 3 green pens. Rutuja wants to pick a pen at random. What is the probability that the pen is blue? [2]

(b) Solve the following subquestions (any four) :

i. Solve the following simultaneous equations: $x + y = 6$; $x - y = 4$ [2]

ii. Obtain a quadratic equation whose roots are -3 and -7. [2]

iii. Write an A.P. whose first term is $a = 10$ and common difference $d = 5$. [2]

iv. A card is drawn from a well shuffled pack of 52 playing cards. Find the probability of the event, the card drawn is a red card. [2]

Suppose S is sample space.

$$\therefore n(S) = 52$$

Event A: Card drawn is a red card.

$$\therefore \text{Total red cards} = \square \text{ hearts} + 13 \text{ diamonds}$$

$$\therefore n(A) = \square$$

$$\therefore P(A) = \frac{\square}{n(S)} \text{ -- formula}$$

$$\therefore P(A) = \frac{26}{52}$$

$$\therefore P(A) = \square$$

v. The following table shows classification of number of workers and number of hours they work in software company. Prepare less than upper limit type cumulative frequency distribution table: [2]

Number of hours daily	Numbers of workers
8 – 10	150
10 – 12	500
12 – 14	300
14 – 16	50

3. [9]

(a) Complete the following activity and rewrite it (any one) :

i. A survey was conducted for 180 people in a city 70 ate Pizza, 60 ate burgers and 50 ate chips. Draw a pie diagram for the given information. [3]

ii. A readymade garment shopkeeper gives 5% discount on a dress of ₹ 2,000 and charges 5% GST on the remaining amount. What is the purchase price of the dress for the customer? [3]

(b) Solve the following subquestions (any two) :

- i. Solve quadratic equation using formula method: $5m^2 + 13m + 8 = 0$. [3]
- ii. The co-ordinates of the point of intersection of lines $ax + by = 9$ and $bx + ay = 5$ is $(3, -1)$. Find the values of a and b . [3]
- iii. A retailer sold 2 tins of lustre paint and taxable value of each tin is ₹ 2,800. If the rate of GST is 28%, then find the amount of CGST and SGST charged in the tax invoice. [3]
- iv. A bag contains 3 red, 3 white, 3 green and 3 black balls. One ball is picked up from the bag at random. What is the probability that the ball drawn is: [3]
- i. white
- ii. not white.

4. **Solve the following subquestions (any two) :** [8]

- (a) The product of two numbers is 352 and their mean is 19. Find the numbers. [4]
- (b) Draw a pie diagram to represent the world population given in the following table: [4]

Country	Japan	England	India	China
Percentage of World Population	20	10	40	30

- (c) One person borrows ₹4,000 and agrees to repay with a total interest of ₹ 500 in 10 instalments. Each instalment being less than the preceding instalment by ₹ 10. What should be the first and the last instalments? [4]

5. **Solve the following subquestions (any one) :** [3]

- (a) Represent the following data using histogram: [3]

Daily Income (₹)	No. of Workers
130 – 135	4
135 – 140	7
140 – 145	14
145 – 150	16

- (b) Solve the following simultaneous equations using Cramer's rule: [3]
- $3x - 4y = 10, 4x + 3y = 5$