

**MATHEMATICS
SOLUTIONS
PART A**

$$1. \quad x = \left(\frac{3}{2}\right)^2 \times \left(\frac{2}{3}\right)^4$$

$$= \left(\frac{3}{2}\right)^2 \times \left(\frac{3}{2}\right)^4$$

$$x = \left(\frac{3}{2}\right)^{2+4} = \left(\frac{3}{2}\right)^6$$

$$x^{-2} = \left(\left(\frac{3}{2}\right)^6\right)^{-2}$$

$$x^{-2} = \left(\frac{3}{2}\right)^{-12} = \left(\frac{2}{3}\right)^{12}$$

$$2. \quad 4x^2 + y^2 = 40, \quad xy = 6$$

$$(a + b^2) = a^2 + b^2 + 2ab$$

$$(2x + y)^2 = 4x^2 + y^2 + 4xy$$

$$= 40 + 4 \times 6 = 40 + 24$$

$$(2x + y)^2 = 64$$

$$2x + y = \sqrt{64} = 8$$

$$3. \quad 17(1 - x) - 5(x + 12) = 8(1 - 7x)$$

$$= 17 - 17x - 5x - 60 = 8 - 56x$$

$$-43 - 22x = 8 - 56x$$

$$-51 = -34x$$

$$x = \frac{51}{34} = \frac{3}{2}$$

4. There are 25 prime numbers up to 100.
2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43
47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 93

5. Divide 231228 by 33

$$\begin{array}{r} 7006 \\ 33 \overline{) 231228} \\ \underline{231} \\ 228 \\ \underline{198} \\ 30 \end{array}$$

$$33 - 30 = 3$$

3 should be added

6. LCM of 5, 6, 8, 12, = 120 sec.

2	5, 6, 8, 12
2	5, 3, 4, 6
2	5, 3, 2, 3
3	5, 3, 1, 3
5	5, 1, 1, 1,
	1, 1, 1, 1,
	1

After 120 sec → the bell will ring together.

$$1 \text{ hour} = 3600 \text{ sec}$$

$$\text{So, } \Rightarrow \frac{3600}{120}$$

$$\Rightarrow 30 \text{ times}$$

But, in beginning also they rang together total time $\Rightarrow 30 + 1 \Rightarrow 31$ times

Including 1 at start = 31 times

7. Rise at the third Bounce

$$= 36 \times \frac{2}{3} \times \frac{2}{3} \times \frac{2}{3} \text{ m}$$

$$= \frac{32}{3} = 10\frac{2}{3}$$

8. Ratio = 3, 5

Let the number be $3x, 5x$

After subtracting 9

$$3x - 9, 5x - 9$$

$$\frac{3x-9}{5x-9} = \frac{12}{23}$$

$$23(3x - 9) = 12(5x - 9)$$

$$23(3x - 9) = 12(5x - 9)$$

$$69x - 207 = 60x - 108$$

$$69x - 60x = 207 - 108$$

$$9x = 99$$

$$x = \frac{99}{9} = 11$$

$$3x = 3 \times 11 = 33, \quad 5x = 5 \times 11 = 55$$

9. Sum of straight line = 180

$$x + 20 + 50 + x - 10 = 180$$

$$2x - 60 = 180$$

$$= 240$$

$$2x = 240$$

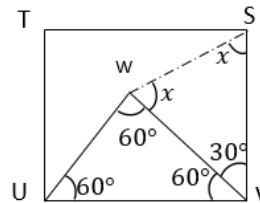
$$x = \frac{240}{2} = 120$$

10. $36 \times 15 \times 8$ = Cuboid volume

$$6 \times 6 \times 6$$
 = Cube volume

$$\frac{36 \times 15 \times 8}{6 \times 6 \times 6} = 20$$
 = No. of cubes.

11.



$$\angle VSW = ?$$

In ΔVSW

$$VW = VS$$

All angles will be 60° in equilateral triangle

$$\angle WVS = 30^\circ \text{ Becoz. } (90 - 60 = 30)$$

$$\text{Let } \angle VSW = \angle SWV = x$$

In a triangle sum is equal to 180

$$x + x + 30 = 180$$

$$2x = 150$$

$$x = 75 \quad \angle VSW = 75$$

12. Discount = 11.11% , Gain = 14.28%

Let CP be 100

$$SP = \frac{CP(100+G\%)}{100}$$

$$SP = \frac{100(100+14.28)}{100}$$

$$SP = 114.28$$

$$SP = \frac{MP \times (100 - D)}{100}$$

$$14.28 = \frac{MP \times (100 - 11.11)}{100}$$

$$= \frac{114.28 \times 100}{100 - 11.11} = MP$$

$$= \frac{114.28 \times 100}{88.89} = 1.2856 \times 100 = 128.56$$

$$MP = 128.56$$

$$MP - CP = 128.56 - 100 = 28.56$$

$$\frac{28.56}{100} \times 100 = 28.56\%$$

13. Smallest 5 digit number = 10000

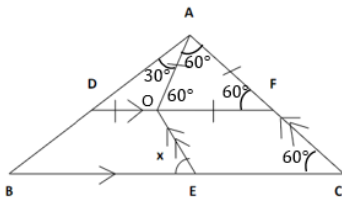
LCM of 16, 24, 36, 54 = 432

$$\begin{array}{r} 23 \\ 432 \overline{) 10000} \\ \underline{864} \\ 1360 \\ \underline{1296} \\ 64 \end{array} = \text{Remainder}$$

$$432 - 64 = 368$$

$$10000 + 368 = 10368$$

14.



$\triangle AOF$ is equilateral triangle so angles one 60

$\angle DAO$ will be 30° ($90 - 60 = 30$)

$\angle AFO = \angle ACB$ (corresponding angle) ($DO \parallel BC$)

$\therefore \angle E = \angle C$ (corresponding angle)

($OE \parallel FC$)

$\therefore x = 60^\circ$

15. Ratio = 3 : 4 : 5

Sum of Ratio = $3 + 4 + 5 = 12$

Cost = Rs 100, Rs 80, Rs 60

Total cost = $3 \times 100 + 4 \times 80 + 5 \times 60$

$= 300 + 320 + 300$

$= 920$

Total CP = 920

Total SP = $920 + \frac{50}{100} \times 920$

$= 920 + 460 = 1380$

SP per kg = $\frac{1380}{12} = 115$

16. Speed of express Train = 80 km/hr $D = x$

Speed of goods Train = 40 km/hr $D = 2x$

Time taken = 54 sec

(Same direction) speed = $80 - 40 = 40$ km/hr

Convert to M/sec = $\frac{40 \times 5}{18} = \frac{100}{9}$ m/s

Total Distance = $x + 2x = 3x$

Total Time = 54 sec

Speed = $\frac{\text{Distance}}{\text{Time}}$

$$\frac{100}{9} = \frac{3x}{54}$$

$$\frac{100 \times 54}{3 \times 9} = 200 = x \text{ m}$$

Length of Express Train = 200m

Length of Goods Train = $2 \times 200 = 400$ m

Speed of express Train Crossing a platform

(m/s) speed = $\frac{80 \times 5}{18} = \frac{200}{9}$ m/sec

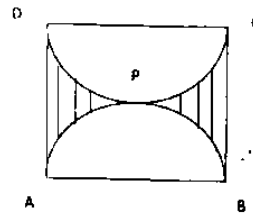
Distance = $200 + 400 = 600$ m

Time = $\frac{\text{Distance}}{\text{Time}}$

$$= \frac{600}{\frac{200}{9}}$$

$$= \frac{600 \times 9}{200} = 27 \text{ sec}$$

17.



Area of square = $(\text{side})^2$

$$= (14)^2 = 196 \text{ cm}^2$$

Area of semi-circle = $\frac{1}{2} \pi r^2$ ($r = 7$)

$$= \frac{1}{2} \times \frac{22}{7} \times 7 \times 7 = 77 \text{ cm}^2$$

Area of 2 semicircles are same

$$77 + 77 = 154 \text{ cm}^2$$

Area of shaded part = Area of square - Area of 2 semicircles

$$= 196 - 154$$

$$= 42 \text{ cm}^2$$

18. Amount = 48400, $P = 40000$, $n = 2$

$$A = P \left(1 + \frac{r}{100}\right)^2$$

$$48400 = 40000 \left(1 + \frac{r}{100}\right)^2$$

$$\frac{48400}{40000} = \left(1 + \frac{r}{100}\right)^2$$

$$\sqrt{\frac{484}{400}} = \left(1 + \frac{r}{100}\right)$$

$$\frac{22}{20} = 1 + \frac{r}{100}$$

$$\left(\frac{22}{20} - 1\right) = \frac{22 - 20}{20} = \frac{2}{20} = \frac{1}{10}$$

$$\frac{1}{10} = \frac{r}{100}$$

$$r = \frac{100}{10} = 10\%$$

19.

$$\boxed{x} + \boxed{y} = 10$$

$$\boxed{a} - \boxed{b} = 8$$

$$= \quad =$$

$$19 \quad 7$$

$$x + y = 10 \text{ (1), } a - b = 8 \text{ (2)}$$

$$x + a = 19 \text{ (3), } y + b = 7 \text{ (4)}$$

Solving (1) - (3) solving (2) + (4)

Subtract (1) and (3) add (2) and (4)

$$x + y = 10 \quad a - b = 8$$

$$x + a = 19 \quad + y + b = 7$$

$$\begin{array}{r} (-) \quad (-) \quad (-) \\ \hline y - a = -9 \end{array} \quad \begin{array}{r} (+) \quad (+) \quad (+) \\ \hline a + y = 15 \end{array}$$

$$y - a = -9 \text{ Or } a - y = 9 \text{ (5)}$$

$$a + y = 15 \text{ (6)}$$

Solving (5) & (6)

$$a - y = 9$$

$$a + y = 15$$

$$\hline 2a = 24$$

$$a = 12$$

$$\text{Eq (3) } x + a = 19$$

$$x + 12 = 19$$

$$x = 19 - 12 = 7$$

$$\text{Eq (1) } x + y = 10$$

$$7 + y = 10$$

$$y = 10 - 7$$

$$= 3$$

$$\text{Eq (2) } a - b = 8$$

$$12 - b = 8$$

$$-b = 8 - 12$$

$$-b = -4$$

$$b = 4$$

$$\boxed{7} + \boxed{3} = 10$$

$$\boxed{12} - \boxed{4} = 8$$

$$= \quad =$$

$$19 \quad 7$$

$$20. 13 \times 13 = 16$$

$$24 \times 24 = 18$$

$$25 \times 25 = ?$$

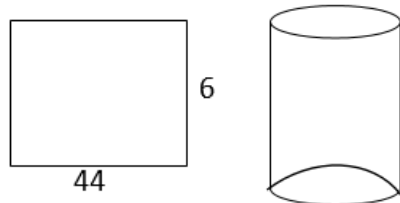
$$13 \times 13 = 169 = 1 + 6 + 9 = 16$$

$$24 \times 24 = 576 = 5 + 7 + 6 = 18$$

$$25 \times 25 = 625 = 6 + 2 + 5 = 13$$

PART B

21.



When rectangle is rolled

Cylinder is formed

Height = 6 cm

Circumference = 44 cm

$$2\pi r = 44$$

$$2 \times \frac{22}{7} \times r = 44$$

$$r = \frac{44 \times 7}{2 \times 22} = 7 \text{ cm}$$

Volume of cylinder = $\pi r^2 h$

$$= \frac{22}{7} \times 7 \times 7 \times 6$$

$$= 924 \text{ cm}^3$$

22. Let the full fare be x

Let the reservation change be y

Price of full ticket = $x + y$

Half ticket = $\frac{x}{2} + y$

Price of full ticket between two stations

$$x + y = 362 \text{ (1)}$$

Price of one full, one half = 554

$$x + y + \frac{x}{2} + y = 554$$

Now $x + y = 362$ put

$$362 + \frac{x}{2} + y = 554$$

$$\frac{x+2y}{2} = 192$$

$$x + 2y = 384 \text{ (2)}$$

From eq (1) and (2)

$$x + y = 362$$

$$x + 2y = 384$$

$$\begin{array}{r} (-) \quad (-) \quad (-) \\ \hline -y = -22 \end{array}$$

$$y = 22$$

Reservation change = 22

23. Let the candidate in Room A $\rightarrow x$

Let the candidate in Room B be y

Case I:

$$x - 10 = y + 10$$

$$x - y = 20 \text{ (1)}$$

Case II:

$$x + 20 = (y - 20)2$$

$$x + 20 = 2y - 40$$

$$x - 2y = -60 \quad (2)$$

From eq (1) and (2)

$$\begin{array}{r} x - y = 20 \\ x - 2y = -60 \\ \hline (-) (+) (+) \\ \hline y = 80 \end{array}$$

$$x - y = 20$$

$$x - 80 = 20$$

$$x = 100$$

Candidates is Room A = 100

Candidates is Rom B = 80

$$\begin{aligned} 24. \frac{x^2+8x+12}{x^2-7x+12} \div \frac{x^2+4x-12}{x-4} \\ \frac{x^2+8x+12}{x^2-7x+12} \times \frac{x-4}{x^2+4x-12} \\ \frac{x^2+6x+2x+12}{x^2-4x-3x+12} \times \frac{x-4}{x^2+6x-2x-12} \\ \frac{x(x+6)+2(x+6)}{x(x-4)-3(x-4)} \times \frac{x-4}{x(x+6)-2(x+6)} \\ \frac{(x+6)(x+2)}{(x-3)(x-4)} \times \frac{x-4}{(x-2)(x+6)} \\ \frac{x+2}{(x-3)(x-2)} \\ \frac{(x+2)}{x^2-2x-3x+6} = \frac{x+2}{x^2-5x+6} \end{aligned}$$

$$25. CP = 380$$

$$D\% = 5\%$$

$$P\% = 25\%$$

$$\begin{aligned} SP &= \frac{CP(100+P\%)}{100} \\ &= \frac{380(100+25)}{100} \\ &= \frac{380 \times 125}{100} = 475 \end{aligned}$$

$$SP = MP \times \left(\frac{100-D\%}{100} \right)$$

$$475 = \frac{MP \times (100-5)}{100}$$

$$475 = \frac{MP \times 95}{100}$$

$$\frac{475 \times 100}{95} = MP$$

$$500 = MP$$

$$26. 3 \text{ Men} = 4 \text{ women}$$

$$\text{Men} = \frac{4}{3} \text{ women}$$

$$7 \text{ men} + 5 \text{ women}$$

$$7 \times \frac{4}{3} \text{ women} + 5 \text{ women}$$

$$\frac{28}{3} \text{ women} + 5 \text{ women} = \frac{43}{3} \text{ women}$$

$$4 \text{ women} = 43 \text{ days}$$

So now 1 women will take

$$1 \text{ women} = 43 \times 4 \text{ days}$$

$$\frac{43}{3} \text{ women} = 4 \times \frac{3}{43} \times 43 = 12 \text{ days}$$

7 men and 5 women complete work in 12 days

$$27. \text{Rate} = 10\%$$

$$CI - SI = 500, T = 2yr$$

$$\begin{aligned} SI &= \frac{P \times R \times T}{100} \\ &= \frac{P \times 10 \times 2}{100} = \frac{20P}{100} = \frac{P}{5} \end{aligned}$$

$$CI = A - P$$

$$CI = P \left[1 + \frac{R}{100} \right]^2 - P$$

$$= P \left[1 + \frac{10}{100} \right]^2 - P$$

$$= \frac{11^2}{10^2} P - P$$

$$= \frac{121P}{100} - P = \frac{21P}{100}$$

$$CI = \frac{21P}{100}$$

$$CI - SI = 500$$

$$\frac{21P}{100} - \frac{P}{5} = 500$$

$$\frac{21P - 20P}{100} = 500$$

$$P = \text{Rs } 50000/-$$

$$28. \text{Let the height be } h$$

$$\text{Length} = 2h \quad \text{breadth} = \frac{3}{2}h$$

By using unitary method

$$\text{Rs. } 1.60 = 1 m^2$$

$$\text{Rs. } 179.20 = \frac{179.20}{1.6} = 112m^2$$

$$\text{Area of 4 walls} = 112$$

$$2lb + 2bh = 112$$

$$2h(1 + b) = 112$$

$$2h \left(2h + \frac{3h}{2} \right) = 112$$

$$2h \left(\frac{7h}{2} \right) = 112$$

$$\frac{14h^2}{2} = 112$$

$$7h^2 = 112$$

$$h^2 = \frac{112}{7} = 16$$

$$h = 4 m$$

$$\begin{bmatrix} l = 2h = 2 \times 4 = 8 m \\ b = \frac{3}{2}h = \frac{3}{2} \times 4 = 6 m \end{bmatrix}$$

$$\text{Area of floor} = l \times b$$

$$= 8 \times 6 = 48 m^2$$

$$\text{Cost} = 48 \times 6.75$$

$$= \text{Rs } 324/-$$

$$29. \text{Tap A} = 12hr \quad \text{Tap B} = 16hr$$

$$\text{Tap C empty} = 8hr$$

$$\text{It all tap on} = A + B - C$$

$$\frac{1}{12} + \frac{1}{3} - \frac{1}{8} = \frac{4+3-6}{48} = \frac{1}{48}$$

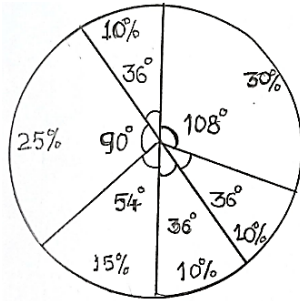
$$= 48 \text{ hrs}$$

$$30. \text{Pie chart}$$

$$\text{Cement} = 30\% \quad \text{cement} = \frac{30}{100} \times 360 = 108^\circ$$

$$\text{Steel} = 10\% \quad \text{steel} = \frac{10}{100} \times 360 = 36^\circ$$

Brick = 10%	brick = $\frac{10}{100} \times 360 = 36^\circ$
Timber = 15%	tinder = $\frac{15}{100} \times 360 = 54^\circ$
Labour = 25%	labour = $\frac{25}{100} \times 360 = 90^\circ$
Miscellaneous = 10%	miscellaneous = $\frac{10}{100} \times 360 = 36^\circ$



ENGLISH SOLUTIONS
SECTION 'A'

- 1.
- a) The author says that people have different perceptions about leaders. In opinion of many, a successful leader leads as an example, takes right decisions, motivates everyone and stays calm at bad times. For many of the leaders their trophies are measure of their leadership quality. But a leader needs to have various attributes that a successful leader possesses.
- b) A great leader should take right decisions, motivate everyone, face problems in calm way and set himself as an example in front of his team. A leader should have trophies, which will make him strong. A leader should have ability to suffer defeats and celebrate victories decently and take lessons from his defeat or losses.
- c) A successful leader – people had made different perceptions to define a successful leader, but a great leader should have all the qualities that successful leader possess.
- d) A captain or a leader both wants to win, but they take failure seriously and learn lessons from their mistakes so that they can perform better next time.
- e) Five attributes that a leader should have are:-
- A good decision maker.
 - Remains calm in times of crises.
 - Motivates everyone.
 - Learns from his mistakes.
 - Has ability to face defeat and celebrate victories decently.
- f) i. held in high esteem
ii. to think on their feet.
- g) i. respect – disrespect, disregard.
ii. nervous – calm, relaxed.
iii. submissive – disobedient, immodest.
- 2.
- a) The phone is smarter than him because the phone can check blood pressure, temperature, tell time of any place across world, can find food of any cuisine on map.
- b) The feature of camera, which helped poet to click shots, make video and take selfie was beyond his imagination.
- c) The 'Eureka Moment' means a moment of discovery. The poet was very amazed to find the camera, that was his eureka moment.
- d) The poet alluded to Mr. Bell because the inventor of the telephone Mr. Bell would never have thought that communication device that he rented could possibly do so much.
- e) The poet's apprehension about the smartphone is that besides all the wonderful features that fascinate him he still wonders how can the phone be used to simply make a call.
- f) i. gadgets – gizmos
ii. examine – probe
- g) Figure of speech - Metaphor
'But one question's _____ middle aged draw'
Here the poet uses a metaphor to say that 'one question still stuck in' is like a food stuck in a bird's throat. It is the same way that one is thinking but finds it difficult to believe or accept as it causes resentment in mind.
- h) Smart phone – Dumb user
- i) Rhyming words - temperature, apertures

SECTION 'B'

3. Email writing
From: kirti@gmail.com
To: ritusharma@gmail.com
Date: 22 December 2020
Subject: Teacher's Day Performance

Dear Mother,

Hope you all are keeping in good health by the Grace of God. I am doing fine too. I know you would be very curious to know about my performance in the skit on the occasion of Teacher's Day celebration at our school.

First I was very nervous and worried but thanks to my best friend who encouraged and supported me a lot. He helped me quite a lot with my preparation and I Practised in front of the mirror as well and got rid of all the self-doubts by just believing in myself. My performance in the skit was very much appreciated by all teachers and my classmates.

Thanks and Regards,
You loving son/daughter,
Kirti sharma

4. "Online learning is the future of education"

Online learning is one of the fastest growing modes of education. It has been recognized at par with traditional classroom learning and has opened new window of opportunities for everyone. Quality education can now be accessible from anywhere in the world with just a click i.e. as long as a person has access to a smartphone or laptop connected to the internet, it is possible to access learning as desired.

Online learning is the future as it offers a more customizable education experience and opens new opportunities for students to create better learning experiences. Many tools are available to facilitate online learning and at the same time it is cost effective as well. Hence the popularity of online learning system is growing with time and it is offering all of us a unique learning experience. Online learning is definitely the future of education in India.

5. a) Will you show me your ticket?
b) I am sorry, I have not bought the ticket.
Don't you know that you will have to pay penalty.
c) But you see I was in a hurry so I had to board
d) The train to go to Mysuru. Won't you
e) Make a ticket now?
f) Yes, I can make a ticket, but you have to pay the fine
g) No Problem Sir. Here g) is the total amount.

6. 37, Nehru colony
Kanpur, Uttar Pradesh
Dated: 23 Dec 2020

The Editor,
Hindustan Times,
New Delhi.

Subject: Need to ban guide books and cheap notes

Sir,

Through the columns of your esteemed newspaper, I wish to bring to the notice of the concerned authorities the harm caused to the student community due to the cheap notes and guides available in market.

Students will not get in-depth knowledge of the concerned subjects if they just refer to guide books and cheap notes available in bookstores which just provide incomplete facts that are not giving thorough knowledge. At times the content published in cheap notes is not authentic and there are lot of spelling mistakes as well. If students manage to clear their exams only by means of guide books then they will not get in depth information that is needed to understand their topics.

I sincerely hope that concerned authorities will pay attention to this wrong practice and ban such guide books and cheap notes.

Yours faithfully,
Ankit Gupta

7. Once upon a time, there was a horse named Whitoo. Whitoo was a majestic stallion with a shiny black coat and a wild spirit. He lived on a farm and spent his days galloping across the fields and grazing on the lush green grass. One day, the farmer decided to sell Whitoo to a local ranch. Whitoo was heartbroken to leave his home and the other animals on the farm. However, he soon discovered that the ranch was a great place to live. The other horses welcomed him and he quickly made friends with them. Whitoo spent his days training and competition in horse shows, where he quickly became a crowd favorite. He loved the thrill of the competition and the feel of the wind rushing through his mane as he galloped around the ring. Despite his success, Whitoo never forgot his roots. He would often think back to his days on the farm and the freedom he felt there. He knew that he would always be a wild spirit at heart, but he was grateful for the new friends and experiences that he had found on the ranch.

SECTION 'C'

8. a) He is arrogant but he is very helpful.
b) No sooner had he reached the station than he saw his cousin.
c) What a beautiful house you have!
d) It is very difficult for me, so I won't be able to tell you his address.
e) Why were you absent yesterday?

- f) Who would not love to see Dhoni play for India for few more years?
 - g) He said to me, "Did you see the girl yesterday?"
 - h) Were you told to write the assignment again?
 - i) Despite his wisdom, he is lazy.
 - j) Did somebody named them Trendsetters yesterday?
9. a) Deleterious - Harmful
 b) Scrumptious - Delicious
 c) Perpetuate - Continue
 d) Spurious - Fake
 e) Impudent - Rude
10. a) Fair - Fare
 b) Red - Read
 c) Need - Knead
 d) Sauce - Source
 e) Night - Knight
11. i. A tree is known by its fruit.
 ii. Money doesn't grow on trees.
 iii. To be an cloud nine.
 iv. Every dark cloud has a silver lining.
 (v) The sky is the limit.
12. OBEDIENCE
- a) Need
 - b) Nice
 - c) Dice
 - d) Niece
 - e) Encode

- f) Code
 - g) Been
 - h) Node
 - i) Bone
 - j) Dine
13. a) i. QRPS
 b) iv. SPRQ
 c) i. PQRS
 d) iii. QRSP
 e) i. QPSR
14. a) Was
 b) Is
 c) Was
 d) Is
 e) Is
 f) Has
 g) Was
 h) Is
 i. Has
 j) Was
15. a) Inaudible
 b) Aesthete
 c) Raconteur
 d) Xenophobia
 e) Antidote
16. Ameteur - Amateur
 Benifitted - Benefited
 Feugitive - Fugitive
 Teatotaller - Teetotaler
 Leicit - Illicit

GENERAL KNOWLEDGE SOLUTIONS

1. b) International Astronomy Day
Explanation: International Astronomy Day is celebrated twice a year, close to the first quarter moon of spring and fall.
2. a) Styrene Gas
3. c) Testing kit
Explanation: 'Covid kavach Elisa' is an indigenous antibody detection kit for Covid -19.
4. b) Black hole
HR 6819 is a double star system.
5. b) Biodiversity
Explanation: The theme for world Environment Day 2020 was 'Biodiversity' with the slogan 'Time for Nature'.
6. d) Kerala
7. b) Bangladesh
8. a) Uttarakhand
9. b) Odisha
10. b) Uttarakhand
Explanation: Uttarakhand has developed India's first 'Lichen Park' at Munsiyari in Pithoragarh district of the state.
11. d) Kathy Sullivan
12. a) India
13. d) Madhya Pradesh
Explanation: Asia's largest solar power project is in Gush tehsil of Rewa district of Madhya Pradesh.
14. b) Ruskin Bond
15. b) Ambala AFS
Explanation: Ambala Air Force Station
16. b) Australia and New Zealand
17. b) K.D. Jadhav
Explanation: K.D. Jadhav won a bronze medal in wrestling at the 1952 Helsinki Olympics.
18. b) Table Tennis
19. d) Lewis Hamilton
20. c) 6 August
Explanation: Hiroshima Day is observed on 6th August and Nagasaki Day on 9th August.
21. a) Total Solar Eclipse
Explanation: The Baily's beads effect or diamond ring effect is a feature of total and annular solar eclipses.
22. c) Centrifugation
Explanation: Centrifugation is a technique used in a washing machine to squeeze out water from wet clothes while drying.
23. a) Measles
Explanation: Measles virus is transmitted by direct contact with infectious droplets or by airborne spread when an infected person breathes, coughs or sneezes.
24. b) Carbon dioxide
Explanation: It prevents combustion by displacing the oxygen in the air surrounding a fire.
25. c) Endocrine System
26. a) Vegetative propagation
27. d) All the correct
Explanation: Plants produce two gaseous waste products i.e. oxygen during photosynthesis & carbon dioxide during respiration. Excess water is eliminated through transpiration.
28. a) CO
Explanation: CO or Carbon monoxide is not a greenhouse gas. O₃ (Ozone), CH₄ (Methane) and water vapour (H₂O) are green house gases.
29. d) Lithium
Explanation: Lithium is the lightest metal in the periodic table.
30. d) Na₂CO₃
Explanation: Na₂CO₃.10 H₂O or Sodium carbonate decahydrate is the chemical formula for washing soda.
31. b) 4°C
Explanation: The maximum density of water occurs at around 4° Celsius.
32. c) Nitrogen
Explanation: It provides a stable & inert atmosphere.
33. a) Lack of atmosphere
Explanation: Scattering of light is not possible due to lack of atmosphere.
34. d) Karl Benz
35. d) All of the above
36. d) Enter key
37. a) Stratosphere
Explanation: The ozone layer which absorbs UV Radiation is present in stratosphere.
38. d) Houston, Texas (USA)
39. d) South Korea
Explanation: Given its serene mountains, clean waters & green terrain especially in the morning, South Korea came to be known as 'the land of morning calm'.
40. c) Lakes and ponds
41. c) Angel Falls, Venezuela
Explanation: Angel Falls called Salto Angle in Venezuela
42. a) Brazil

Explanation: Brazil is the only country in the world through which both the Tropic of Capricorn and the Equator pass.

43. a) Sun

44. b) Pacific Ocean

Explanation: Coral reefs are the colonies of tiny living creatures that are found in oceans.

45. b) Hypothalamus

46. a) PVC

Explanation: PVC stands for Polyvinyl Chloride

47. b) Voltmeter

48. c) Mound of the dead

49. d) Azam Shah

Explanation: Built in 1668, the Tomb of Rabia Durani or Bibi ka Maqbara was erected by Azam Shah, the son of Aurangzeb to commemorate his mother Dilras Begum who was titled Rabia Durani post her death.

50. b) Lord Dalhousie

51. b) Bismarck

Explanation: Bismarck played an important role in the formation of a unified German Empire in 1871.

52. a) Nandankanan National Park

53. c) Rann of kutch, Gujarat

54. d) Sikkim

55. d) Los Angeles (USA)

56. b) Football

57. b) Lakshadweep

58. d) Sanskrit

59. c) Meghalaya

Explanation: Garo Khasi, Jaintia and English are the official languages of Meghalaya.

60. c) Ishwar Chandra vidyasagar

61. a) Cinnabar

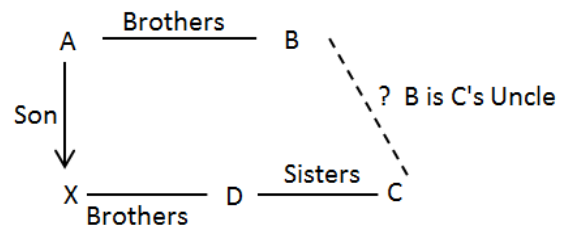
Explanation: Cinnabar, mercury sulfide (HGS) is the main ore of mercury

62. b) Kepler

Explanation: Johannes Kepler discovered the law of planetary motion in 1606

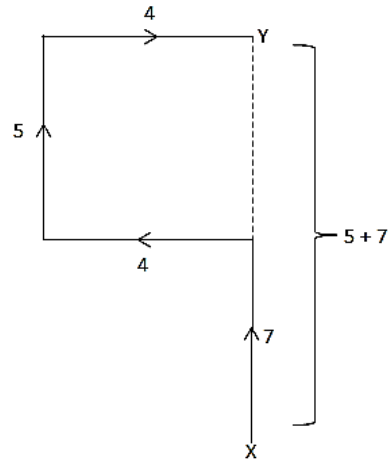
63. d) Uncle

Explanation:



64. c) 12 km, South

Explanation: Distance between X and Y
 $5 + 7 = 12 \text{ km}$



65. c) Grass

66. a) Rafflesia

67. a) ATP (Adenosine triphosphate)

68. a) 36 Islands

69. c) Anemometer

70. Both b) and c)

Explanation: Train Driver or Locopilot

71. b) China

72. c) Seven countries.

73. b) Godavari, the longest river in South

74. c) E. Sreedharan

75. d) Bull.

Explanation: The "Sengol" scepter is a long, stick-like item (5 feet) made of silver and covered in gold. It has carving of a bull, called a Nandi, at the top.