General Science and Ability

Question:
Part (a)

Total amount = $370 $x \Rightarrow \$370$

first part & third part $\Rightarrow 3:5$

1 part = $3x$

3rd part = y

2nd part = $\bar{y}$

$2nd \Rightarrow y = \frac{1}{4}(5x)$ $y = \frac{5x}{4}$

$3x : 5x \Rightarrow 3:5$

$\frac{3}{8}(\$370) \quad \frac{5}{8}(\$370)$

$\$138.75 : \$231.25$

1st part = $\$138.75$

3rd part = $\$231.25$

2nd part = $\frac{5}{4}(3rd\ part)$

$2nd = \frac{5}{4}\cdot\frac{(\$231.25)}{5}$

$2nd\ part = \$57.8125$

$\Rightarrow$ Three parts are $\$138.75, \$57.8125$ and $\$231.25$

Part b

Kashif required = Rs 800

He had = Rs 200 (in bank)

He borrowed = 20% (from brother)

He borrowed = 30% (from mother)

How much does he needs more = ?

Borrowed 20% from brother =>

$$\frac{Rs\ 800 \times 20}{100} = Rs\ 160$$

Remaining = Rs 800 − 160 = Rs 640

Funded by his mother = $\frac{Rs\ 640 \times 30}{100}$ = Rs 192

Bank balance = Rs 200

Funds Now available = 160 + 192 + 200 = Rs 552

Amount still need = Rs 800 − 552 = Rs 248

Part c.

1st bag = 3 red , 7 black
2nd bag = 8 red, 2 black
3rd bag = 4 red, 6 black

$P(bag1) = 1/3$
$P(bag2) = 1/3$
$P(bag3) = 1/3$

$P(red|bag1) = 3/10$
$P(red|bag2) = 8/10$
$P(red|bag3) = 4/10$

$$P(red|bag3) = \frac{\frac{1}{3} \times \frac{4}{10}}{\frac{1}{3} \times \frac{3}{10} + \frac{1}{3} \times \frac{8}{10} + \frac{1}{3} \times \frac{4}{10}} = \frac{4}{15}$$

$$P(red|from\ 3rd\ bag) = \frac{4}{15}$$

Part d

Road Lights change at = 24, 36 & 72 seconds
Simultaneous change at = 8:20:00 hrs
change again = ?

Interval of change = (24, 36, 72) => LCM = 72 sec
change after 72 sec => 1 minute 12 second

$$3$$

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  8:20:00
  00: 1 :12
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8:21:12 hrs

$$10$$

Question 8
Part a

~~Speed = 40km/hr~~

Speed $\Rightarrow S_1 = 40$ km/hr

Speed $\Rightarrow S_2 = 60$ km/hr

~~average speed = ?~~

~~average = 40 km/hr + 60 km/hr~~
~~2~~

$$time = \frac{distance}{speed}$$

$$1^{st} \, half \overset{time}{=} \frac{d}{40} \qquad 2^{nd} \overset{time}{=} \frac{d}{60}$$

$$distance = \frac{2d}{a \, (average)}$$

$$\frac{1}{40 km/h} + \frac{1}{60 km/hr} = \frac{2}{a}$$

$$\frac{3+2}{120 km/hr} = \frac{2}{a}$$

$$\frac{5}{120 km/hr} = \frac{2}{a}$$

$$\frac{5}{120 \times 2} = \frac{1}{a}$$

$$5a = 240 km/hr$$

$$a = \frac{240 km/hr}{5}$$

$$\boxed{a = 48 km/hr}$$

Part b

ROSE	6821
CHAIR	73456
PREACH	96147 3
SEARCH	?

~~so so~~

all alphabitical same have same digits

| R·O | S | E | | C | H | A | I | R | | P | R | E | A | C | H |
| 6 | 8 | 2 | 1 | 7 | 3 | 4 | 5 | 6 | 9 | 6 | 1 | 4 | 7 | 3 |

| S | E | A | R | C | H |
| 2 | 1 | 4 | 6 | 7 | 3 |

Part c

brother   sister

A is the brother of B.
B is the sister of C. father
C is the father of D.   D
How D related to A?
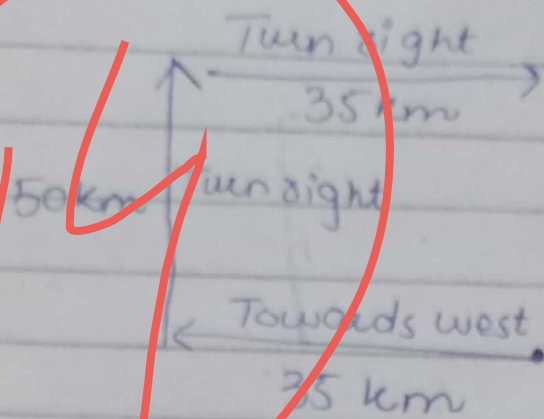D being a male member?

A is brother   B is sister
C is brother & father to D.
A, B & C are three sibilings.

→ A is the paternal uncle of D.
→ D is a nephew or ~~niece depend~~ ~~gender~~.

Part d

Turn right
35 km

50 km (turn right)

Towards west
35 km

Distance from her original and final destination is => 50 km

Question 7
Part a

$I_1 =$ Ishaq time $= 6$ hours
$A =$ Abbas time $= 4$ hours
$I_2 =$ Irfan $= 8$ hours

$I_1 = \frac{1}{6}$ after 1 hour
$A = \frac{1}{4}$ after 1 hour
$I_2 = \frac{1}{8}$ after 1 hour

I_1 and A start work together for 2 hours.

$$\left(\frac{1}{6} + \frac{1}{6}\right) + \left(\frac{1}{4} + \frac{1}{4}\right)$$

$$= \frac{12}{36} + \frac{21}{42} = \frac{1 + 1}{3 \quad 2}$$

$$= \frac{2 + 3}{6} = \frac{5}{6}$$

completed $\frac{5}{6}$ of total work.

Abbas (A) leave after 2 hours
Irfan and Ishaq working now
They need to complete $\Rightarrow \frac{1}{6}$ work now

$$I_1 + I_2 = \frac{1}{6} + \frac{1}{8}$$

$$\frac{4+3}{24} = \frac{7}{24}$$

They both complete $= \frac{7}{24}$ work after every hour.

need to complete $\Rightarrow \frac{4}{24}$ work.

$$hour = \frac{Progress}{Progress/hour} = \frac{4/24}{7/24/hour}$$

$$\frac{4}{24} \times \frac{24}{7} \qquad t = \frac{4}{7} \text{ hours}$$

$$t = 0.57 \text{ hours}$$

$t = 0.57 \times 60$ minutes

$t = 34.2$ minutes

It will take approx 0.57 hours where Abbas left.

Initial time $= 2$ hours

Total time $\Rightarrow 2$ hours $+ 0.57$ hours
$= 2.57$ hours   or 2 hour 34.2 minutes

Part b

Area of the farm = $576 m^2$

4 Sides of wall   1 Side = 24 meter

So for 3 sides of Area of wall = $24 \times 2 \times 3$

= ~~152~~ 144 Sq meter

~~On their side~~ = ~~20~~ ~~∞~~ = ~~60 Sq~~ ~~meter~~

1 side = 24 ~~∞∞~~ sq meter

3 sides = 24×3 = ~~4350m²~~ $72m^2$

Total = $72 m^2 + 144 m^2$

= $216 m^2$ ✓

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n = Total students = 7

18, 18, 19, 19, 19, 21, 21

Sum = 135

Mean = $\dfrac{\text{Sum of observations}}{n}$

$\dfrac{135}{7}$ Mean = 117

Median =

$\left[\dfrac{(n+1)}{2}\right]^{th}$ term

$\dfrac{7+1}{2} = \left(\dfrac{8}{2}\right)$ = 4th term

Median = 19

Mode = Maximum number repeated

Mode = 19

1) Mean is the average of any numbers.
2) Median is the middle value from numbers given, without arranging.
3) Mode is most repeated number from data set or with more frequency.

Part d

IQ (Intelligence Quotient)
    IQ test measures statistically how intelligent a person is.