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⇒ General Science & Ability:

part-I

- 1 - (B) Light Year.
- 2 - (A) Solar eclipse
- 3 - (B) Volcanic eruption.
- 4 - (B) ~~Atom~~ Solar energy
- 5 - (B) ~~Nucleus~~. Atom
- 6 - (B) Nucleus.
- 7 - (D) Nucleic acid
- 8 - (B) photosynthesis .
- 9 - (D) Green land .
10. (D) All of the above
- 11 - (C) Sox emission
- 12 (C) paris agreement.
- 13 (A) Recycling .
- 14 (B) Vitamin D
- 15 (A) Food processing .
- 16 A protein synthesis
- 17 (A) pancreatic Juice, Saliva
- 18 (C) Both chloroplast & mitochondria
- 19 (C) folic acid.

20 - (A) Microwaves.

Part-II

Section-II :

Question no #07 : part (b) .

Solution:

The average monthly salary of
P and Q is = 5050

$$\frac{P+Q}{2} = 5050$$

$$P+Q = ~~10000~~ 10,100 \rightarrow (i)$$

The average monthly salary of
Q and R is = 6250

$$\frac{Q+R}{2} = 6250$$

$$Q+R = 12500 \rightarrow (ii)$$

The average salary of P and R
is = 5200

$$\frac{P+R}{2} = 5200$$

$$P+R = 10,400 \rightarrow (iii)$$

To find P ?

$$P + Q = 10,100 \rightarrow (i)$$

$$Q + R = 12500 \rightarrow (ii)$$

$$P + R = 10,400 \rightarrow (iii)$$

From eq (ii)

$$Q = 12500 - R$$

from eq (iii)

$$P = 10,400 - R$$

Put the value of Q and P in eq (i)

$$(10,400 - R) + (12500) = 10,100$$

$$22,900 - 2R = 10,100$$

$$-2R = 10,100 - 22,900$$

$$-2R = -12,800$$

$$R = \frac{12800}{2} = 6400$$

$$\boxed{R = 6400}$$

put the value of R in eq (iii)

$$P + 6400 = 10,400$$

$$P = 10,400 - 6400$$

$$\boxed{P = 4000}$$

So, the monthly salary of P is 4000 Rs.

part (c)

Solution: We need to use the binomial distribution to find out the probabilities.

$$P(n) = \binom{n}{r} p^r q^{n-r}$$

where $n =$ no of ~~to~~ tossing a coin

$p =$ probability of success

$q =$ probability of failure.

$$\binom{n}{r} = \frac{n!}{(n-r)! r!}$$

$$p + q = 1$$

We know the probability of a coin is $1/2$, so $p = 1/2$

~~$p = 1/2$~~ $q = 1 - p$

$$q = 1 - 1/2 = 1/2$$

$$p = 1/2$$

$$q = 1/2$$

$n = 500$ times.

Now the probability of two heads is given as.

$$P(H=2) = {}^{500}C_2 \left(\frac{1}{2}\right)^2 \left(\frac{1}{2}\right)$$

$$\begin{aligned} P(H=2) &= 24,750 \times (0.25)(0.5) \\ &= 24,750 \times 0.125 \\ &= \end{aligned}$$

part (d)

Solution:

	Jamie's	Father	Equation
present	J	F	$F = 2J$
future	$J+8$	$F+8$	$F+8 = 2(J+8)$

The equations are

$$F = 2J \rightarrow (1)$$

$$F+8 = 2(J+8) \rightarrow (2)$$

put the value of eq (1) into eq (2)
we get.

$$8J + 8 = 2J + 16$$

$$8J - 2J = 16 - 8$$

$$6J = 8$$

$$J = \frac{8}{6} = \frac{4}{3}$$

$$J = \frac{4}{3}$$

put the value of J in eq (1).

$$F = 8 \frac{4}{3}$$

So, now Jamie's father age

$$F = 10.6 \text{ or } 8 \frac{4}{3}$$

per hour.

Now, the sum of Jamie's age is given by.

$$\text{Jamie's age} = J + J + 8$$

$$\text{Sum} = \frac{4}{3} + \frac{4}{3} + 8$$

$$= \frac{8}{3} + \frac{8}{1}$$

$$= \frac{8 + 24}{3} = \frac{32}{3}$$

Sum of Jamie's age now is

$$J = \frac{32}{3}$$

Question No # 06.

part (a).

Solution:

part (a) :

Solution:

$$20\% \text{ of } x = y$$

$$\frac{20}{100} (x) = y$$

$$\boxed{0.2(x) = y}$$

Now, the second condition.

$$z = y\% \text{ of } (20) \text{ in terms of } x.$$

$$z = \frac{0.2(x) \times (20)}{100}$$

$$z = 0.002 \times (20) \times x$$

$$z = 0.04x$$

So, the value of $y\%$ in terms of x has ~~been~~ been found which is $0.04x$

$$= \frac{0}{3} + \frac{0}{1}$$

$$= \frac{8 + 24}{3} = \frac{32}{3}$$

sum of Jamie's age now is

$$J = \frac{32}{3}$$

Question no # 06.

part (a).

Solution:

Find the value of k .

We know that the average is 15 denoted by.

$$\bar{x} = 15$$

Now, Arithmetic mean's formula

is $\bar{x} = \frac{\sum^n}{n} \rightarrow (1)$

so, by putting the value in (1)
#09.

$$15 = \frac{9 + 8 + 10 + k + 12}{5}$$

$$15 = \frac{39 + k}{5}$$

$$75 = 39 + k$$

$$k = 75 - 39$$

$$\boxed{k = 36}$$

So, the value of k is 36.
part (c).

Solution:

$$r = 12 \text{ cm}$$

The volume of a football is given as $\frac{4}{3} \pi r^3$.

$$\pi = 3.14$$

$$\text{So Volume (V)} = \frac{4}{3} (3.14) (12)^3$$

$$V = \frac{4}{3} (3.14 \times 1728)$$

$$\boxed{V = \frac{4}{3} (5425.92)}$$

$$V = 7216.47.$$

part (b)

Solution:

Find the initial solution of sugar mixture ?

The ratios of sugar solution
of colored water is given as.

$$4:3$$

So $\frac{4}{3} (7) = \text{mix solution.}$

$$[9.33] = \text{mix solution}$$

Now, 10 Litres ~~are~~ of colored
mixture is added to it.

So

$$\begin{aligned} \text{Colored mixture 'n'} &= 10 + 9.33 \\ &= 19.33 \end{aligned}$$

Now, the ratios are $4:5$

$$\frac{4}{5} (9) = \text{Colored mixture}$$

$$\text{Colored mixture} = 7.2$$

So, in order to find initial
quantity of sugar solution, it is
necessary to subtract it from
mix solution,

$$\text{mix solution} = 9.33$$

$$\text{Colored mixture} = 7.2$$

$$\text{Water remained} = 9.33 - 7.2$$

the quantity of water is 2.13 Litre
 part (d).