CSS - 2020 GSA

(Q#6) Tariq do a tailoring job in 6 hours. sajid does the same job in 4 hours. Irfan does it in 8 hours. Tariq and Sajjid start doing the work. Sajid leaves after two hours and Irfan replaces him. How long would it take to complete the work?

Solution.

Tariq tailoring job hours = 6
Sajjid tailoring job hours = 4
Irfan tailoring job hours 8
work complete in one hour

$$\frac{1}{6}, \frac{1}{4}, \frac{1}{8}$$

Tariq and sajjid total work

$$\frac{1}{x} = \frac{1}{6} + \frac{1}{4}$$

$$\frac{1}{x} = \frac{2+3}{12}$$

$$\frac{1}{x} = \frac{5}{12} \Rightarrow 12x = 5x$$

2 | 6, 4
2 | 3, 2
3 | 3, 1
1, 1

$$x = \frac{12}{5} = \boxed{2.4 \text{ hours}}$$

Total work of sajid & Tariq (2.4 hours)

percentage of work completion by the Tariq & Sajid

$$= \frac{\text{work done}}{\text{Total work}} \times 100$$

$$= \frac{2}{2.4} = 100$$

$$= \frac{2}{24} \times 10 = \frac{20}{24} = \frac{10}{12} = 0.8333$$

Remaining work $= 83\%$

$100\% - 83\% = 17\%$

Tariq & Irfan work

$$\frac{1}{9} = \frac{1}{6} + \frac{1}{8}$$

$$\frac{1}{x} \quad \frac{4+3}{24}$$

$$\frac{1}{x} = \frac{7}{24}$$

$$7x = 24 \Rightarrow x = \frac{24}{7} = 3.42$$

work done by Tariq & Irfan

$= 3.42 \times 17\%$

$= 0.5814$

$$\begin{array}{r} {\scriptstyle (1)}\ {\scriptstyle (1)} \\ 342 \\ 0.17 \\ \hline 2394 \\ 342\,x \\ 000\,xx \\ \hline 0.5814 \end{array}$$

Total work done

(Tariq + Sajid) + (Tariq + Irfan)

$= +0.5814$

$\boxed{2.5814}$ Ans.

(b) Find the missing number to complete each sum

(a) $9+8-5=2\times(\cdots)$ b) $3\times9-14=24-(\cdots)$

(c) $15\div3\times12=14+(\cdots)$ d) $24\div4+5=66\div(\cdots)$

(e) $8\times6-13+3=7\times6(\cdots)$

Solution

(a) $17-05=2\times x$

$12=2x$

$\boxed{x=6}$ Ans

(b) $27-14=24-x$

$13-24=-x$

$-11=+x$

$\boxed{11=x}$ Ans.

(c) $5\times12=14+x$

$60=14+x$

$60-14=x$

$\boxed{46=x}$

(d) $6+5=66\div x$

$11=66\div x$

$11x=66$

$\boxed{x=6}$ Ans

(e) $48-10=42-x$

$38-42=-x$

$\boxed{+4=+x}$ Ans

(c) There are seven students in group having ages of 17, 17, 18, 18, 18, 19, 19 calculate mean, median, mode and range of their age. Also define these mentioned terms.

a) (i) Mean :- Mean is sum of all values divided by the number of values

$$= \frac{17+17+18+18+18+19+19}{7}$$

$$= \frac{34+54+38}{3}$$

$$\text{Mean} = \frac{126}{3} = \boxed{42}$$

(ii) Median: is the middle value of given numbers

$$= 17, 17, 18, 18, 18, 19, 19$$

Median is $\boxed{18}$

(iii) Mode: The most repeated number among values is mode.

17, 17, 18, 18, 18, 19, 19

As 18 is most repeated number it is mode.

(2)

(iv) Range is the difference between higher value and lower value of given numbers

17 is the lowest number while 19 is the highest number.

Range = 19 - 17 = **2**

(d) **How does mental ability scale differ from IQ test?**

	IQ test	Mental ability scale
(i)	It is narrowly focused.	→ It is has the brodder view
(ii)	It focused on process or problem solving technique	→ It focused on broader view, abstract thinking.
(iii)	It does not include cultural aspect.	→ It include the cultural context to avoid bais-ness
(iv)	It has highly standardized to measure one cognitive abilities	→ It does not strictly follow the rooms or rules. → It also consider memory retention power.
(v)	It has the very long history used for different educational purposes	(v) It only identify the strength and weaknesses of any in educational context

Q#7a) Mushtaq, pervaiz, Ehsan, Umair and Saleem are friends having different heights and weights. Mustaq weights four times as mush as pervaiz and pervaiz weight double than Ehsan, Ehsan weight half as much as Umair and umair weights half as mush as ~~umair~~ saleem.

(i) who is heaviest (ii) who is the second heavie
(iii) who has lowest weight (iv) who are equal in weight? (v) Mention the decending order.

Solution:-

let be @=Mushtaq = 4 times pervaiz

b=pervaiz = 2 times Ehsan.

c=Ehsan = $\frac{1}{2}$ (umair)

d=Umair = $\frac{1}{2}$ saleem

let the pervaiz weight be x.

→ Mustaq $= 4x$ ——

$x = 2 \times$ Ehsan

→ $\frac{x}{2} =$ Eshan

$\frac{x}{2} = \frac{1}{2}$ Umair

$\frac{2x}{2} =$ umair.

→ $x =$ Umair

$x = \frac{1}{2}$ saleem

$2x =$ saleem.

(i) Mustaq is the heawiest among all

(ii) Saleem is the secund highest among all.

(iii) Umair & pervaiz are equal in weight

(iv) Mustaq > saleem > Umair & pervaiz > Ehsan

(b) A farmer needs to build a boundary

Area $= 484 m^2$

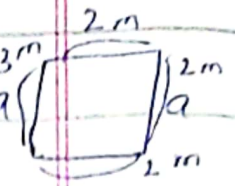
Area of rectangle is A^2.

what is the total Area of wall?

2 | 484
2 | 242
11 | 121
11 | 11
| 1

if it is two meter high on the three side and three meter on one side?

Solution:



Area of square $= a^2$

Area of one side $48\ m^2$.

Area of one side $2^2 \times 11$

Area one side 2×11

Area $= 22m$

(WI) Area of wall with 2m $= (2 \times 3) \times 22 = 132m$

Area of wall with 3m $= 3 \times 22 = 66m$

(WI) As peremeter of square is 4a

(working one) three side having 2m $= (2 \times 3)$

Total area of walls $= 136m + 66m$

Total area of walls $= 202\ m$

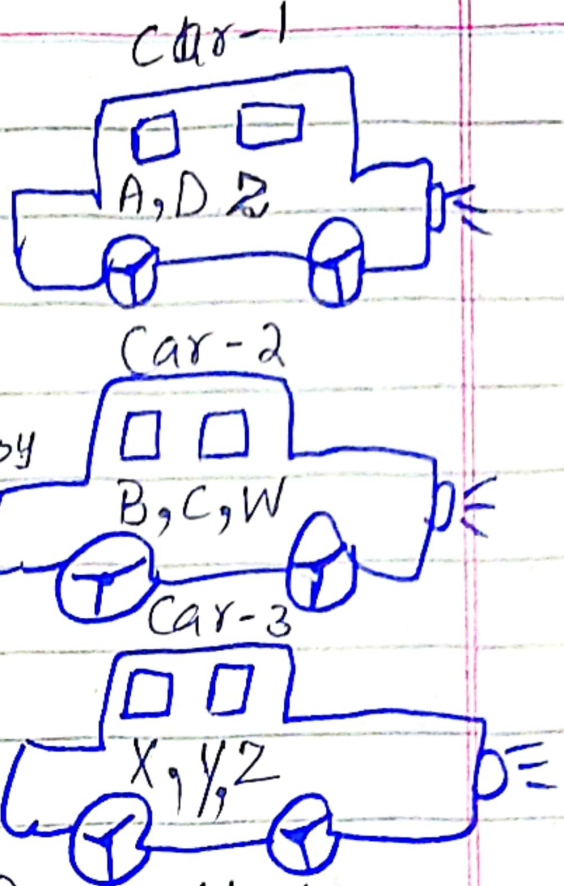
(c) five girls A, B, C, D, E and four boys W, X, Y, Z have to go a trip in three cars, car-1, car-2, car-3 The following restrictions for seating in car are to be observed

(i) only three persons in a car

(ii) At least one boy and one girl in each car

(iii) A & D should remain together (iv) Z can't sit with B & C

Solutions



Arrange can be as follows

Car-I

A, D are girls & Z is boy it fullfilling condition (i), (ii) and (iii), which as as followed 3 person in a car, at least one boy and one girl and A&D should be together and Z is not with B & C.

Car - II B, C & W

This arrange of B, C, W are fulling three conditions (i), (ii) and (iv) as condition (iii) is fullfilled in car - I.

Car - III

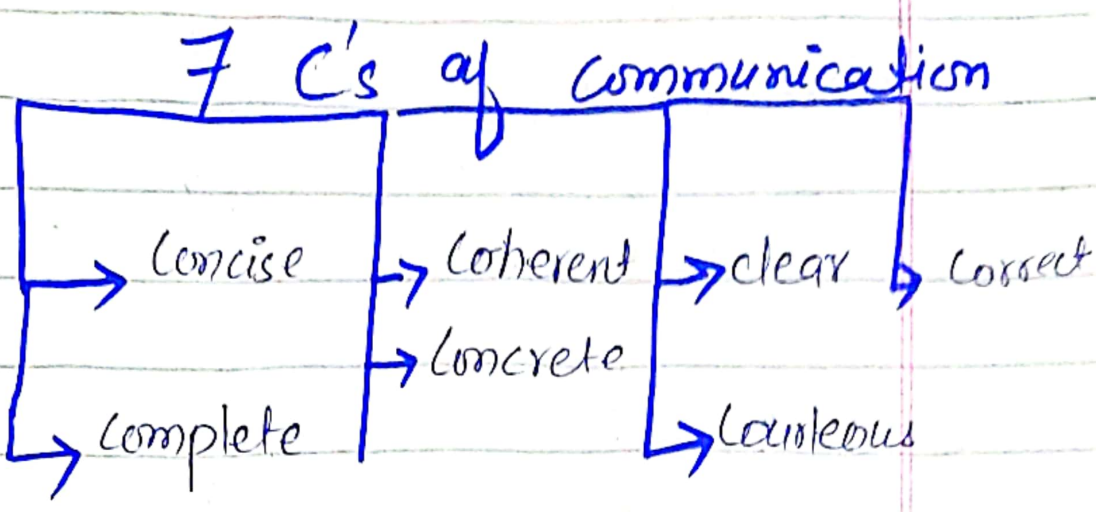
X, Y & Z is arrangement in car III which fullfill condition (i), (ii) and (iv), as condition (iii) is already met in car-I

a) What are social skills? Describe four causes of weak social skill?

Social skills are the path ways to create the relationships among human beings. Social skills are based on the principle of communication. this can be verbal or non verbal communication. Social skill are mechanisms on which humans maintain the longterm relationships. As humans are social animals they need to interact with other humans for survival. **According to symbolic interactionist view** humans developed through social skill or through social interaction with other. **According to** Aristotle human are social animals they can't survive on their own they need to interact with eachother for survial.

Social skills :- Social skills based on verbal or non-verbal communication. However, communication itself based

on 7 C's of communication



Any defect in above mentioned C' leads to lack of social skills

Causes of lack of social skills

(i) Language Barrier

If someone is not familer to any language they can not socialize with that community. Because they are unable to delivers, concise, clear, concrete, coherent and correct message to that specific community.

(ii) Alienation from culture

Alienation from any culture

failure to communicate
could leads to misunderstand through non-verbal communication. To be socially acceptable one must needs to understand the meaning of culture

(iii) **Stressfull situation**

Any failure to understand anyone's culture leads to create a stressfull situation which automatically create trouble for some. Unable to deliver courteous message is another cause of lack of social skill.

(iv) **lack of knowledge**

The lack of knowledge about folkways or mores of any society also cause the poor set of social skills. Moreover, lack of knowledge could not deliver in coherent, complete and concrete message which leads to troubled situation.

(v) **Lack of self confidence:** lack of self confidence is also a cause for poor social skill.

(4)

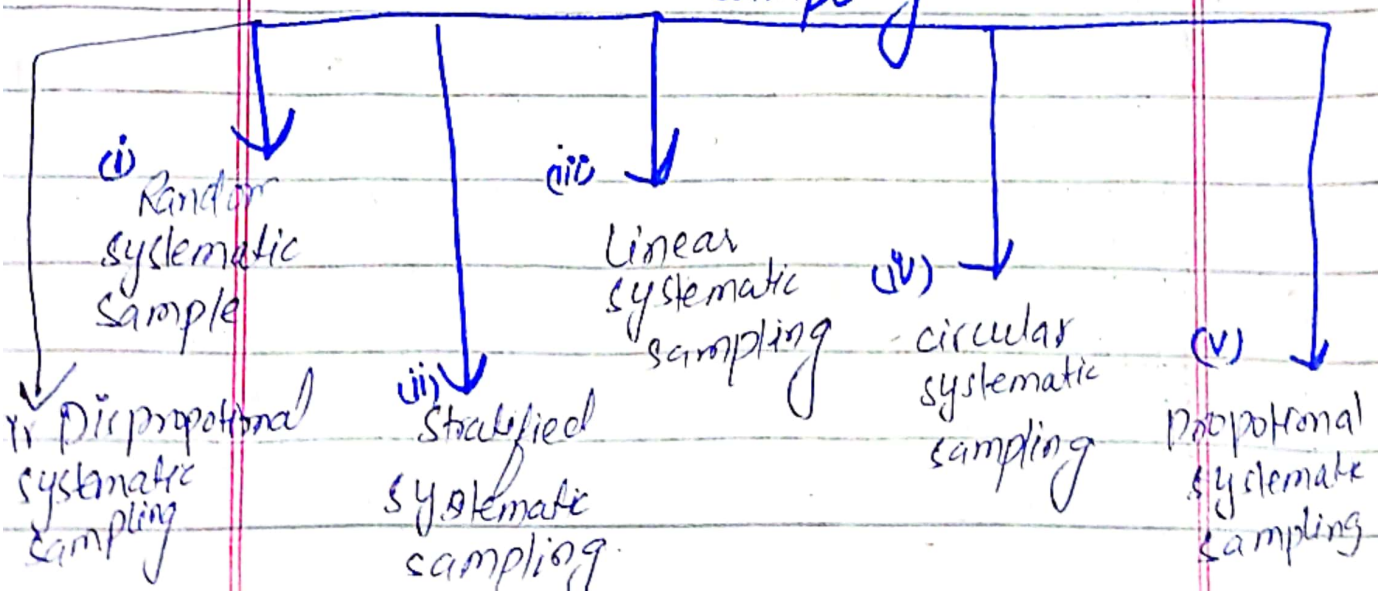
(5) Q#8 (a) What is systematic sampling? Disuss its types?

Definition

Probability sampling with systematic way is known as systematic sampling. It is good for the larger number of population. In this this type of sampling a random interval is drawn for example out of 5000 in each every 500, 10th subject will be choosed. for example

$$= \frac{5000}{500} = 10$$

Types of systematic sampling



(i) **Random systematic sampling**

In a supermarket to check the response of customes towards product the interval of 10th is fixed after of visiting customer 10th will be chosen for response.

(ii) **Stratified systematic sampling**

In similarly, the interval is fixed now response of age group (09-10) towards newly introduced chocolate flavour will be recorded for research.

(iii) **Propotionate systematic sampling**

Example:- To get the response for new sports in curriculam teacher distribute questionair in three classes. In every class 30% of student are choosen for survey.

(iv) **Disproptionate systematic sampling**

In Disporpotionate there is no defined propotion. The student of highes classes include in survey will be 70% while in junior section only 30% will be included. However no, Propotional formula

is also a cause for poor social skill.

(v) linear systematic sampling

In this sampling time period is being defined. To measure the stress level and turnout ~~press~~ due to high pressure. The sample paper are being distributed among employee during opening and closing of financial year.

(vi) circular systematic sampling

It start the sample after some time from the same point where it is ended.

(b) Blood group of inhabitant of a village were checked it was found that 600 ople possessed blood group A. 650 possessed ~~650~~. blood group B, 550 had blood group A & B and 200 have blood group of O. Calculate the probability of having blood B (ii) calculate the probability of having blood group O.

Solution

Blood group (A) = 600

blood group (B) = 650

Blood Group (AB) = 550

Blood group (O) = 200

600
650
550
200
2000

Total possible out comes = 600 + 650 + 550 + 200

Total possible outcome = 2,000

probability = $\frac{\text{no of occurance of an event}}{\text{Total possible outcome}}$

blood group (B) = $\frac{650}{2000} = 0.325$

200 | 6500 | .0325
6000
5000
4000
10000
10000
X

Blood group (B) = 32.5 %.

Blood group (O) = $\frac{200}{2000}$

200 | 2000 | 0.1
2000
X.

Blood group (O) = 0.1 % or 1 %.

occurance of probability of Blood group (B) = 32.5 %
occurance of probability of Blood group (O) = 1 %

Ans

Q#8(c) A group of 50 men can construct 20 kilometer road in 40 days. How long will it take 70 men to complete same length of road?

Solution:-

Days	Men	Road
40	50	20
x	70	20

$$\frac{x}{40} = \frac{50}{70} \times \frac{20}{20}$$

$$\frac{x}{40} = \frac{50}{70}$$

$$7x = 200$$

$$x = \frac{200}{7} \quad 28.5$$

$$x = 28.5 \text{ days}$$

(d) Zahid left the property of worth Rs 1750,000. His family had to pay off debt of Rs. 150,000. This cost of money was distributed between son and a daughter. How much did

each child receive if share of a Son was double than that of a daughter

Solution:

Zahid left property = 1750,000
debt to be paid off = 150,000
Remaining amount = 1750,000 - 150,000
Remaining amount = 1,600,000

Total share = son's share + Daughter share
Total share = 2 + 1 = 3
Daulthers' share = 1600,000 × 1/3
533,333.33

Daughters share 533,333.33

Son's share = 1600,000 × 2/3

Son's share = 1066,666.66

least, smallest, lowest, Minimum common, together, same

CSS-2019 (GSA)

Q#6 Moiz was trying to sleep at one night but there was too much noise around him, His clock ticked every 05 second; a tap was dripping every 07 second and a pet dog snored every 12 second. He noticed on his clock that all three things happened together on the stroke of mid night. Find after how many second all three things happened together again.

Solution:

clock ticked = 05 sec.

Tap Dripping = 07sec

dog snored = 12 sec.

How many

second all three happened = ?

(together)

L.C.M

5	5, 7, 12
7	1, 7, 12
2	1, 1, 12
2	1, 1, 6
3	1, 1, 3

L.C.M. 5 × 7 × 2 × 2 × 3 × 1

L.C.M = 420

after 420sec all three happened together.

) one pipe can fill a pool 1.25 times as fast as second pipe. when both pipes are opened they fill fill the pool in five hours. How long will it take the pool if only slower pipe is used?

Solution:..

let be the pipe x

The fast pipe = $x = 1.25x$

slower pipe = $1.25x$.

Two pipes filled, tank in 05 hours

$$\frac{1}{x} + \frac{1}{1.25x} = \frac{1}{5 \text{ hours}}$$

$$\frac{1.25 + 1}{1.25x} = \frac{1}{5 \text{ hours}}$$

$$\frac{2.25}{1.25x} = \frac{1}{5 \text{ hours}}$$

$16.25 \text{ hours} = 1.25x$ Ans

slower pipe filled the tank in 11.25

$\frac{1125}{125} \times \frac{100}{100} = x$ fas pipe fill tank in 9hours

$\Rightarrow x = 9\text{hours}$ Ans

(v) Lack ... is also a cause for poor com...

(c) The cost for hiring a car for 2 days in 2018 was 264 which was 20% more than in 2013, what was the cost of hiring a car for two days in 2013

Solution

let the price of car be = x.

In case of 20% more on a car.

$x + 20\% x = 264$

$x + \frac{20}{100} x = 264$

$\frac{100x + 20x}{100} = 264$

$120x = 26400$

$x = \frac{2640}{12}$

$x = 220$ cost of hiring for days in 2013

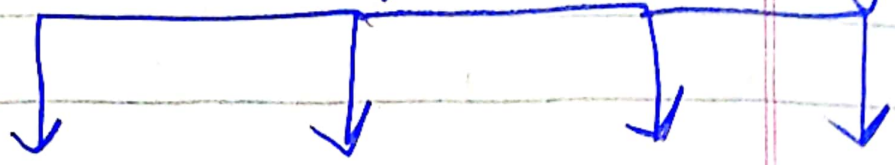
Ans

d) Measure of Central Tedendy and its types?

The Central tendency is the technique to measure the central value of data in large population. It is very effective in measuring in the

mean or middle value of large sample size

Types of central Tedency



Mean/Average. Median Mode Range

Mean: Mean is the ~~middle~~ Sum of value of given data divided by number of given data.

for example: $\frac{1+2+3+4+5}{5} = \frac{15}{5} = \boxed{3}$ ↓Mean

Median: Median is the middle value of given number.

1, 2, 3, 4, 5, 6, 7

here 04 is the mean.

If only six number are given then averge of middle value will be considered as median

1, 2, 3, 4, 5, 6

$= \frac{3+4}{2} = \frac{7}{2} = \boxed{3.5}$ Median

Mode: Mode is the most repeated value in set of data

1, 2, 2, 2, 2, 4, 4, 3, 3, 5, 5

Here 02 is mode of data

Range: It is the difference between higher value and lower value.

1, 20, 25, 60, 61

Range = 61 - 1 = 60 Ans

Q#7 Moiz and Munir share a lottery win of Rs 3000 in the ratio 1:4. Moiz share then part between himself and, his wife, son in the ratio of 4:5:1. How much more does his wife get over their son?

lottery amount = 3000

Moiz share = 1

Total share = 1+4 = 5

Moiz share in lottery = $\frac{3000}{5} \times 1 = 600$

Moiz wife share = $\frac{600 \times 5}{5} = 1200$

Moiz's share = $\frac{600 \times 4}{5} = 240$

Moin's share = $\frac{600 \times 1}{10} = 60$

Moiz share 300, wife shar 240, son's to shar

How much more does wife get = 240 - 60 = 180

180 Ans

(b) A Farmer keeps Hens and Rabbits on his farm one day, he counted total of 70 head and 196 legs. How many hens & rabbits does he have.

Solution - let H be Hen & R be Rabbit

Now equations will be.

$$2H + 4R = 196 \quad \text{(i)}$$

$$H + R = 70 \quad \text{(ii)}$$

Multiplying equation no (ii) with 2

$$2(H + R) = 2(70)$$

$$2H + 2R = 140 \quad \text{(iii)}$$

Subtracting equation (iii) from (i)

$$2H + 4R = 196$$

$$\pm 2H \pm 2R = \pm 140$$

$$2R = 056$$

$$R = \frac{56}{2} \Rightarrow \boxed{28}$$

Putting value of R in equation (iii)

$$2(H) + 4(28) = 196$$

$$2H + 112 = 196$$

$$2H = 196 - 56$$

$$2H = 84$$

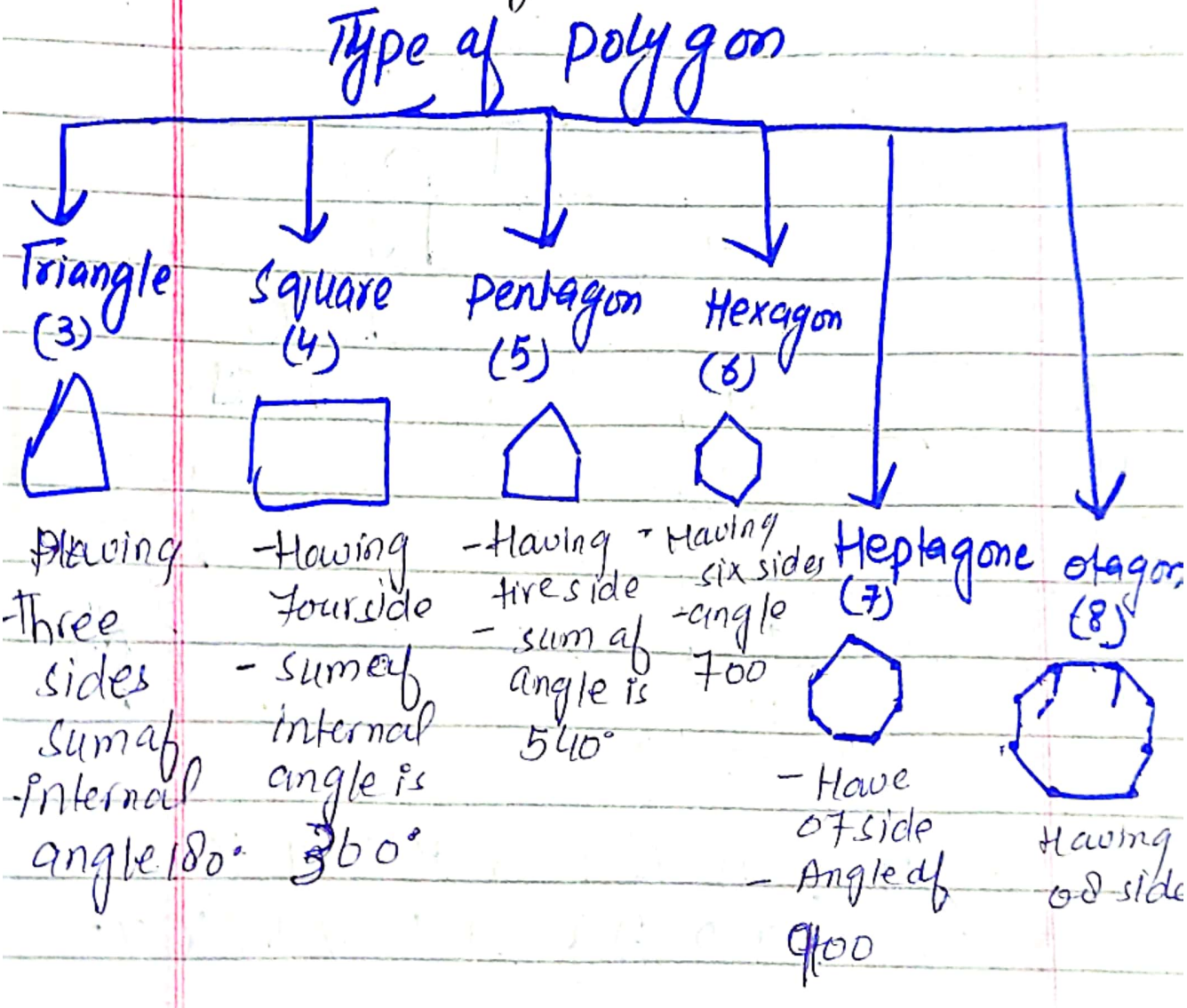
$$H = \frac{840}{2} = \boxed{42}$$

Hens = 42, Rabbits = 28

$42 + 28 = 70$ $\quad$ $2(42) + 4(28) = 196$

c) What is polygon? Describe different types of polygon?

The word polygon can be divided into two part poly means many and gon means sides. The meaning of poly-gon means many sides. It is two dimentional shape of straight line not include any circle. Two dimentions means length and width.



(d) Answer can taken to crack the code the next imediate number in reverse order.

Computer = RFUVQNPC

MEDICINE = EMJDJFFM

Q#8 (a) Solution

(i) T, U, V, W, X, Y Z

T	Y	X	W	Z	U	V
1	2	3	4	5	6	7

(ii)

V	U	X	W	Y	T	Z
1	2	3	4	5	6	7

solution. ↑ 2 plays seventh Must be true.

(b) $U = (10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24)$

$A = [10, 12, 14, 16, 18, 20, 22, 24)$

$B = [10, 15, 20)$

$A \cap B = [10, 12, 14, 16, 18, 20, 22, 24] \cap [10, 15, 20]$

$A \cap B = [10, 15, 20]$ Ans

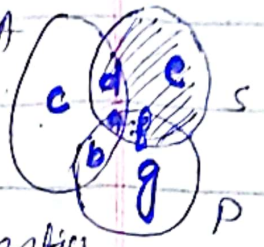
(c) American = c, b, a d.

→ American not scientist but politician?

→ Scientict which are politicion not American

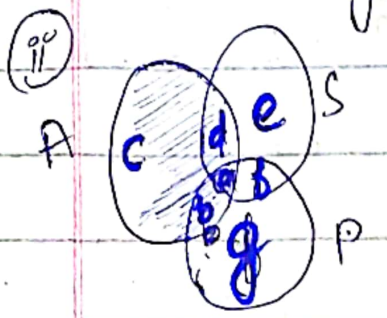
Solutions:-

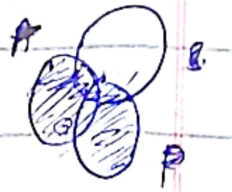
(i) American politician but not scientis = b, a



b is only aplitican not scientist

(ii)





f is the scientist which is the the politician not American.

(d) **Solution**

→ Each packing carring token

→ 4 token can be exchange for a packe

= if 64 packets.

Then free packet received are = $64/4_{1} = 16$

Now 16 packets = $16/4 = 4$

Now the 04 packet = $4/4 = 1$

Total packet received are = $16+4+1 = \boxed{21}$