

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 Sajid 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
Sajid 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 Sajid total work:

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

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

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

$$\begin{array}{r} 2 \overline{) 5.4} \\ 2 \overline{) 3.2} \\ 3 \overline{) 3.1} \\ \hline 1.1 \end{array}$$

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

Total work of Sajid & Tariq (2.4 hours)
percentage of work completion
by the Tariq & Sajid

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

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

$$= \frac{2}{2.4} \times 10 = \frac{20}{24} = \frac{5}{6} = 0.8333$$

$$\begin{array}{r} 0.8333 \\ 6 \overline{) 5.000} \\ \underline{48} \\ 20 \\ \underline{18} \\ 20 \\ \underline{18} \\ 20 \end{array}$$

Remaining work = 83%
100% - 83% = 17%

Tariq & Irfan work

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

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

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

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

$$\begin{array}{r} 2 \overline{) 6.8} \\ \underline{2} \\ 4 \\ \underline{4} \\ 0 \\ 0 \\ \underline{0} \\ 0 \end{array}$$

work done by Tariq & Bryan
 $= 3.42 \times 17\%$

4

~~Total work done
 (Tariq + Sajid) + (Tariq + Bryan)~~

~~$2 + 0.5814$~~

~~2.5814~~

$$\begin{array}{r} \textcircled{1} \\ \textcircled{2} 342 \\ 0.17 \\ \hline 2394 \\ 342 \\ \hline 000 \\ \hline 6.5814 \end{array}$$

Ans =
 give the final answer in the form of statements.

(b) Find the missing number to complete each sum

(a) $9 - 8 - 5 = 2 \times (\dots)$

b) $3 \times 9 - 14 = 24 - (\dots)$

(c) $15 \div 3 \times 12 = 14 + (\dots)$

d) $24 \div 4 + 5 = 66 \div (\dots)$

(e) $8 \times 6 - 13 + 3 = 7 \times 6 (\dots)$

Solution

(a) $17 - 05 = 2 \times x$
 $12 = 2x$
 $x = 6$ Ans

(b) $27 - 14 = 24 - x$
 $13 - 24 = -x$
 $-11 = -x$
 $11 = x$ Ans.

attempt in a bit more detail with steps.

(c) $5 \times 12 = 14 + x$
 $60 = 14 + x$
 $60 - 14 = x$
 $46 = x$

(d) $6 + 5 = 66 \div x$
 $11 = 66 \div x$
 $11x = 66$
 $x = 6$ Ans

(e) $48 - 10 = 42 - x$
 $38 - 42 = -x$
 $-4 = -x$
 $x = 4$ 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

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

$$= \frac{34 + 54 + 38}{7}$$

$$\text{Mean} = \frac{126}{7} = 18$$

ii) Median: is the middle value of given numbers

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

$$\text{Median is } 18$$

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.

$$\text{Range} = 19 - 17 = 2$$

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

IQ test

Mental ability scale.

(i) It is narrowly focused. → It has the broader 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 biasness

(iv) It has highly standardized to measure one or two cognitive abilities → It does not strictly follow the norms or rules.

→ It also consider memory retention power.

(v) It has the very long history used for different educational purposes → It only identify the strength and weaknesses of any in educational context

Q#7a) Mushtaq, Pervais, Ehsan, Umair and Saleem are friends having different heights and weights. Mushtaq weights four times as much as Pervais and Pervais weight double than Ehsan, Ehsan weight half^{as} much as Umair and Umair weight's half as much as ~~Umair~~ Saleem.

(i) who is heaviest (ii) who is the second heaviest

(iii) who has lowest weight (iv) who are equal in weight? (v) Mention the descending order.

Solution:-

let be (a) = Mushtaq = 4 times Pervais

b = Pervais = 2 times Ehsan.

~~Ehsan = $\frac{1}{2}$ a~~ (c) = Ehsan = $\frac{1}{2}$ (Umair)

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

let the pervair weight be x .

→ $\boxed{\text{Mustaq} = 4x}$
 $x = \frac{1}{2} \times \text{Ehsan}$

→ $\boxed{\frac{x}{2} = \text{Ehsan}}$

$$\frac{x}{2} = \frac{1}{2} \text{Umar}$$

$$\frac{x}{2} = \text{Umar}$$

→ $\boxed{x = \text{Umar}}$

$$x = \frac{1}{2} \text{Saleem}$$

$$\boxed{2x = \text{Saleem}}$$

- (i) Mustaq is the heaviest among all
(ii) Saleem is the ~~second~~ ^{second} highest among all.

(iii) Umar & pervair are equal in weight

(iv) Mustaq > Saleem > Umar & pervair > Ehsan

(b) A farmer needs to build a boundary

$$\text{Area} = 484 \text{ m}^2$$

Area of rectangle is A^2 .

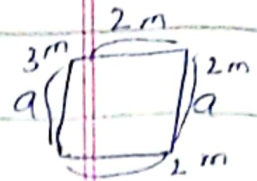
what is the total Area of wall?

$$\begin{array}{r} 2 \overline{) 482} \\ 2 \overline{) 242} \\ 11 \overline{) 121} \\ 11 \overline{) 11} \\ \hline 2 \quad x \end{array}$$

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 489 m^2

Area of one side 22×11^2

Area one side 22×11

Area = 22 m

(W.I) Area of wall with 2 m = $(2 \times 3) \times 22 = 132 \text{ m}$

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

(W.I) As perimeter of square is $4a$

(working one) three side having 2 m = (2×3)

Total area of walls = $136 \text{ m} + 66 \text{ m}$

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

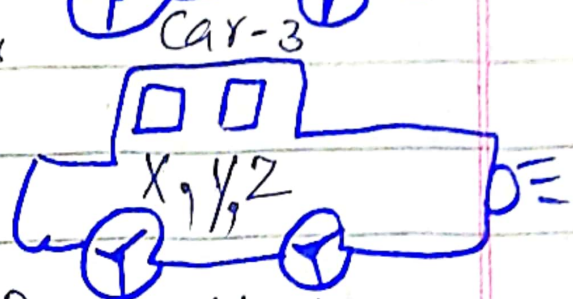
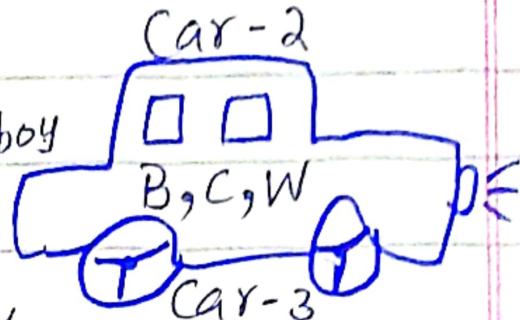
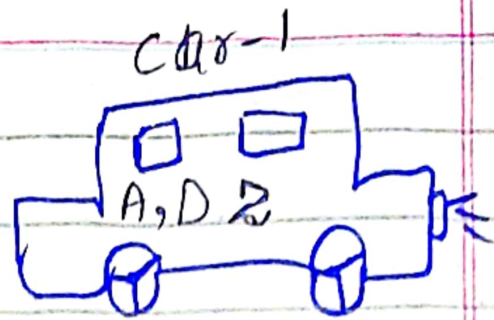
(i), (ii) and (iii),^{iv} which are

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 fullfilling all three conditions (i), (ii) and (iv) as condition (iii) is fullfilled in Car-I.

Car-III

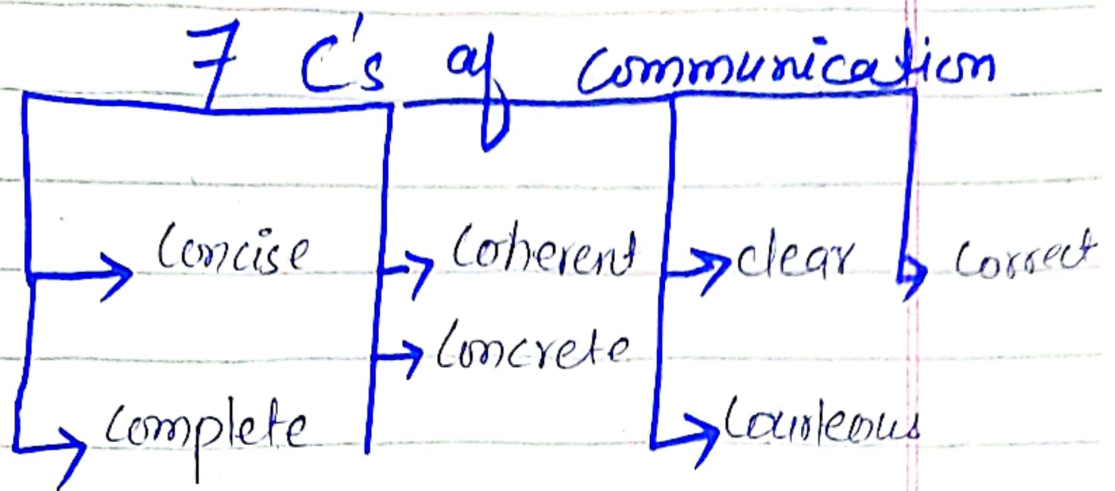
X, Y & Z is arrangement in Car III which fullfill condition (i), (ii) and (iv), as condition (iii) is already met in Car-I

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

Social skills ~~are~~ ^{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 nonverbal communication. Social skills 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 each other for survival.

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

on 7th C's of communication



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

Causes of lack of social skills

(i) Language Barrier

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

(ii) Alienation from culture

Alienation from any culture

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

(iii) Stressful situation

Any failure to understand anyone's culture leads to create a stressful situation which automatically create trouble for some. Inability 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.

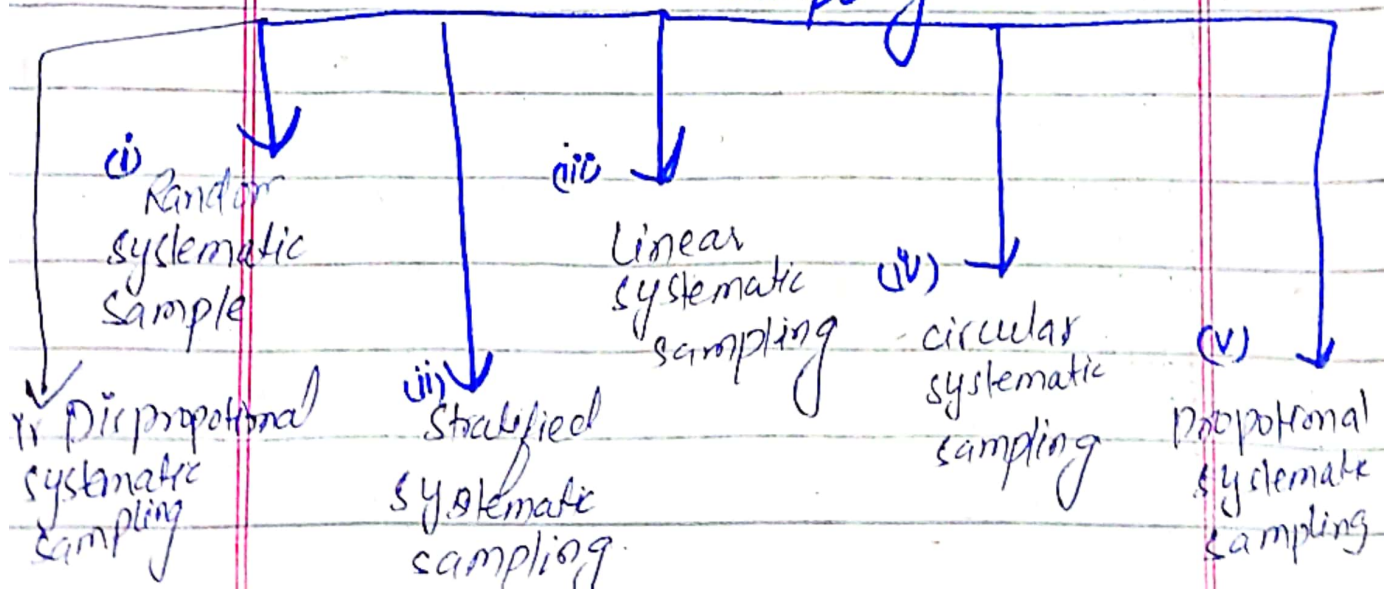
Q #8 (a) What is systematic sampling?
Discuss its types?

Definition

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

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

Types of systematic sampling



(i) Random Systematic Sampling

In a Supermarket to check the response of customers 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) Proportionate systematic sampling

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

(iv) Disproportionate Systematic sampling

In Disproportionate there is no defined proportion. The student of higher classes included in survey will be 70% while in junior section only 30% will be included. However, no, Proportional 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 papers are being distributed among employees during opening and closing of financial year.

(VI)

circular systematic
sampling

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

(b)

Blood group of inhabitants of a village were checked. It was found that 600 people 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

$$\text{blood group (A)} = 600$$

$$\text{blood group (B)} = 650$$

$$\text{Blood group (AB)} = 550$$

$$\text{Blood group (O)} = 200$$

$$\begin{array}{r} 600 \\ 650 \\ 550 \\ 200 \\ \hline 2000 \end{array}$$

$$\text{Total possible outcomes} = 600 + 650 + 550 + 200$$

$$\text{Total possible outcome} = 2000$$

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

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

$$\begin{array}{r} 0.325 \\ 6500 \\ 6000 \\ \hline 5000 \\ 4000 \\ \hline 10000 \\ 10000 \\ \hline \end{array}$$

$$\text{Blood group (B)} = 32.5\%$$

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

$$\begin{array}{r} 0.1 \\ 200 \\ \hline 2000 \\ 2000 \\ \hline \end{array}$$

$$\text{Blood group (O)} = 0.1\% \text{ or } 1\%$$

$$\begin{array}{l} \text{occurrence of probability} \\ \text{of blood group (B)} = 32.5\% \\ \text{occurrence of probability} \\ \text{of blood group (O)} = 1\% \end{array}$$

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

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

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

$$7x = 200$$

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

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

(d) Zahid left the property of worth Rs 1750,000. His family had to pay off debt of Rs. 150,000. This rest 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 = 1,750,000

debt to be paid off = 150,000

remaining amount = $1,750,000 - 150,000$

Remaining amount = 1,600,000

Total share = son's share + Daughter share

Total share = $\frac{2}{3} + \frac{1}{3} = 3$

Daughters' share = $1,600,000 \times \frac{1}{3}$

Daughters share 533,333.33

Son's share = $1,600,000 \times \frac{2}{3}$

Son's share = 1,066,666.66

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 = 07 sec

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	
		1, 1, 1	

L.C.M = 420

after 420 sec all three happened together.

$5 \times 7 \times 2 \times 2 \times 3 \times 1$

$\frac{284}{420}$

1) one pipe can fill a pool 1.25 times as fast as second pipe. when both pipes are opened they 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 5 hours

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

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

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

$$\boxed{11.25 \text{ hours} = 1.25x} \quad \text{Ans slower pipe filled the tank in 11.25}$$

$$\frac{11.25}{1.25} \times \frac{100}{100} = x \quad \text{fast pipe fill tank in 9 hours}$$

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

(v) Lack of
is also a cause for poor comm

(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.

$$x + 20\%x = 264$$

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

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

$$120x = 26400$$

$$x = \frac{26400}{120}$$

120

$$x = 220$$

Ans

cost of hiring for days in 2013

$$\begin{array}{r} 220 \\ 12 \overline{) 2640} \\ \underline{240} \\ 240 \\ \underline{240} \\ 0 \end{array}$$

d) Measure of Central Tendency 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

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

$$\text{Range} = 61 - 1 = \boxed{60} \text{ Ans}$$

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

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

$$\text{Moiz wife share} = \frac{600 \times 5}{10} = \boxed{300}$$

$$\text{Moiz's share} = \frac{600 \times 4}{10} = \boxed{240}$$

$$\text{Son's share} = \frac{600 \times 1}{10} = \boxed{60}$$

How much more does wife get

Moiz share 300, wife share 240, son's share 60

$$= 240 - 60 = \boxed{180}$$

$\boxed{180} \text{ Ans}$

(b)

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

Solution - let H be Hen & R be Rabbits
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)

$$2H + 4R = 196$$

$$+ 2H + 2R = 140$$

$$\hline 2R = 56$$

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

Putting value of R in equation

(iii)

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

$$2H + 112 = 196$$

$$2H = 196 - 112$$

$$2H = 84$$

$$H = \frac{84}{2} = \boxed{42}$$

Hens = 42, Rabbits = 28

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

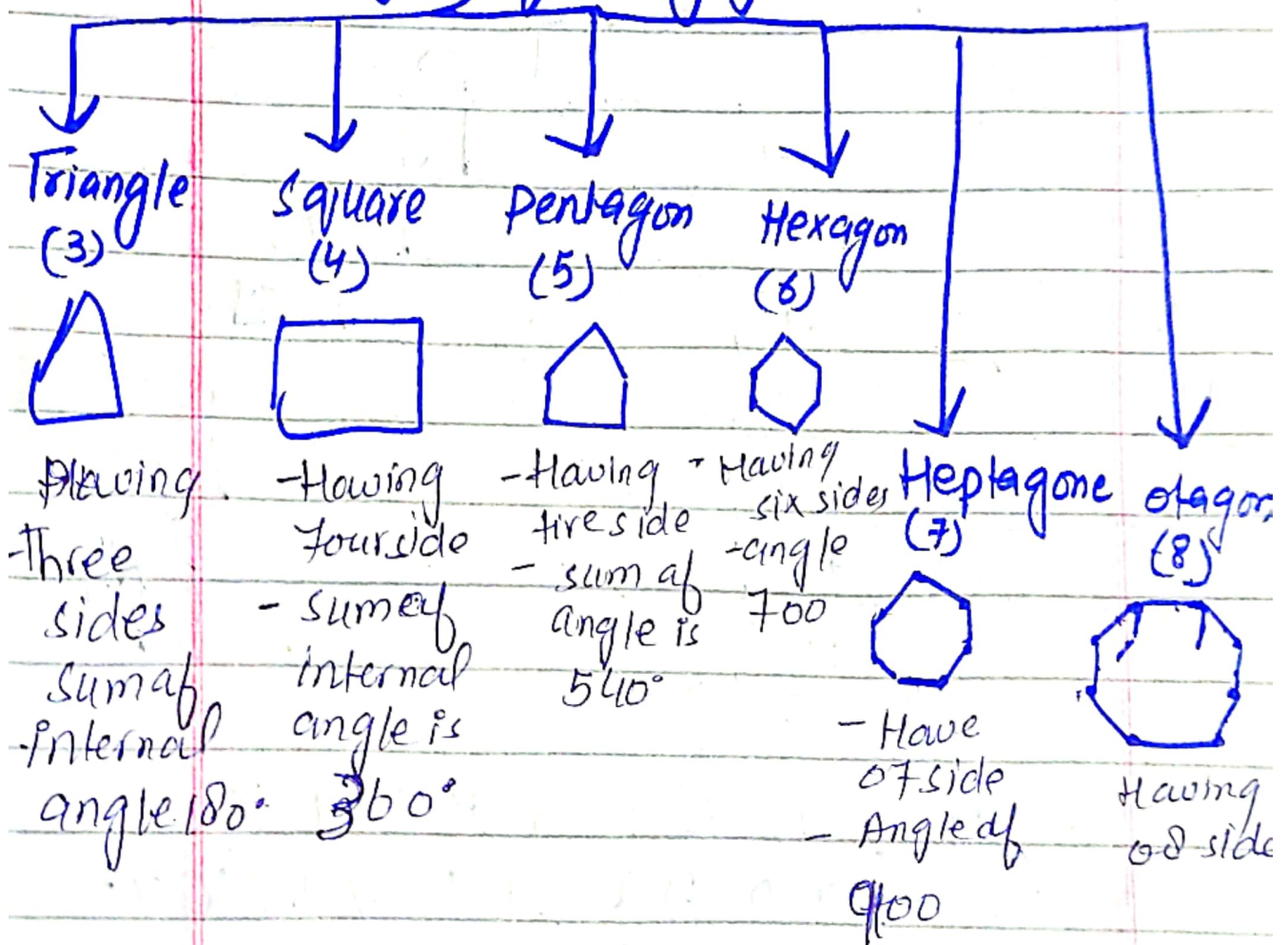
$$\begin{array}{r} 28 \\ 112 \\ \hline 140 \end{array}$$

$$\begin{array}{r} 42 \\ 84 \\ \hline 140 \end{array}$$

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 dimensional shape of straight line not include any circle. Two dimensions means length and width.

Type of polygon



(d) Answer can taken to crack the code the next immediate numbers in reverse order.

COMPUTER = R F U V Q N P C

MEDICINE = E M J D J F F M

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. 72 plays seventh must be true.

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

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

$B = [10, 15, 20]$

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

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

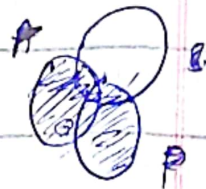
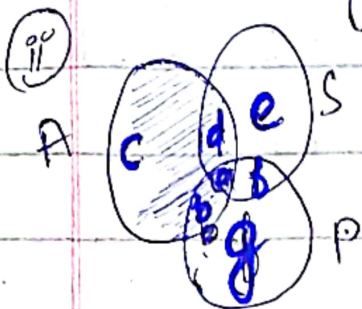
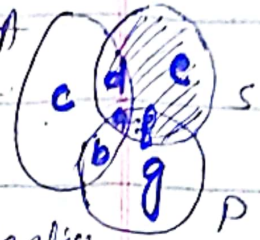
(c) American = c, b, a, d.

→ American not scientist but politicians,

→ Scientist which are politician not American.

Solution:-

(i) American politician = b, a
but not scientist
b is only politician not scientist



f is the scientist which is the politician not American.

(d) Solution

→ Each packing carrying token

→ 4 token can be exchange for a packet

= if 64 packets.

Then ¹⁶/₄ packet received are = $64/4 = 16$.

Now 16 packets = $16/4 = 4$

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

Total packet received are = $16+4+1 = 21$