

Date: 1 / 20

L11063-MOS-83

(M T W T F S S)

## GENERAL SCIENCE & ABILITY

Q. NO. 8

A. Five different houses A to E in  
a row.

1) A is to the right of B &  $\therefore (B-A)$

2) E is to the left of C and  $\therefore (E-C)$   
right of A.  $\therefore (A-E-C)$

3) B is to the right of D  $(D-B)$   
by combining 1, 2 & 3

we know that:

1) B's right is A and left is D

& A's right is E and E's right is C

So the row is given below.



D

B

A

E

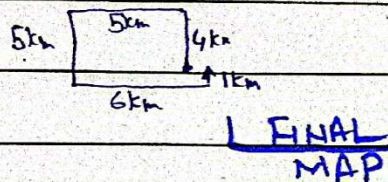
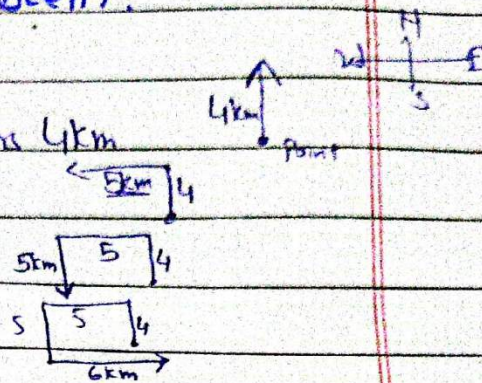
C

So, from the above row,  
it can be deduced that the  
house in the middle is the  
A's house.

18

## Running & directions Problem:

1. Running towards north  $\rightarrow$  covers 4km
2. Turn left  $\rightarrow$  run 5km.
3. Again turn left  $\rightarrow$  run 5km
4. Turn left again  $\rightarrow$  run 6km
5. Before finishing take another left  $\rightarrow$  run 1km



### Questions

- 1) How many km are you from where you started?

$\rightarrow$  From the final map we can deduce that we are 1km East of the starting Point.

SP 1km EP

i.e x-axis calculations  $- 5\text{km} - 6\text{km} = -1\text{km}$

y-axis calculations  $= 4 - 5 + 1 = 0\text{km}$

So Net distance is 1km.

- 2) Which direction will you be running while finishing?

$\rightarrow$  The last left turn (4th left turn) will be

towards North considering we started running towards North as well. So, we will be sprinting towards North direction before finishing.

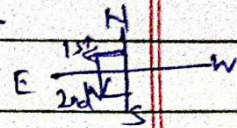
3) After taking the second turn, in which direction would you be running?

→ We started running in North

After 1st left turn, our direction will be

West. After 2nd left turn, our direction will become South.

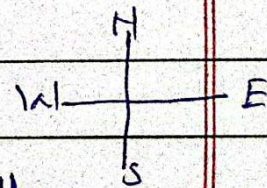
So, we will be running towards South after second left turn.



4) From finishing Point if you have to reach Point from where you started, in which direction you'll have to run?



From (i) we know that we are 1km at the East of the Point we started.



So, if we wish to reach our starting Point, we will run towards West for 1km from finishing Point.

Q8 Find odd one out:

C

THRSI    AOTC    EOUBSL

KTRIS    RETAEWS

20818199    115203    5152121919

112018919    18-5-20-1-5-23-19

→ SHIRT

AOTC

→ BLOUSE

→ SKIRT

→ Sweater

So, the odd one out  
is AOTC as all other  
words can be arranged into  
pieces of garments but AOTC  
cant be re-arranged

So odd one is AOTC.

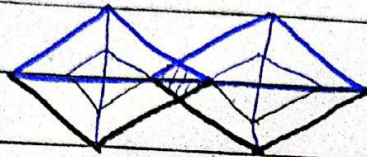
Ques

D Part

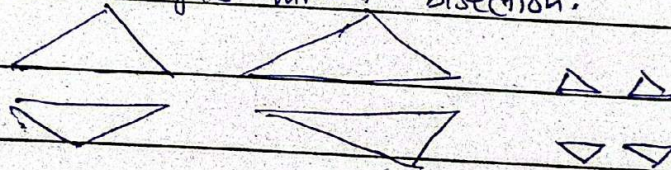
How many triangles in the

Image

→ Re drawing the Image with multiple shades to count the triangles.

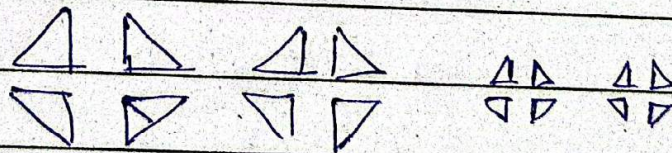


1- Counting the major triangles and minor triangles without bisection.



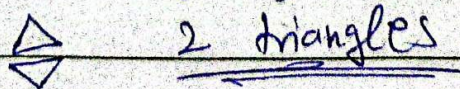
8 triangles

2- Counting the triangles after bisection.



16 triangles

3- Counting the 2 shaded triangles formed due to union of major triangles.



2 triangles

Adding ① ② & ③ we  
have a total of:

$$8 + 16 + 2 = \underline{26 \text{ triangles.}}$$

7B

Q. No. 7

7A

If 40% of a number is  
equal to  $\frac{2}{3}$  of another number  
what is the ratio of 1st number  
to the 2nd number?

$$\rightarrow 40\% \text{ of } A = \frac{2}{3} \text{ of } B$$

$$\Rightarrow 40\% = \frac{40}{100}$$

$$\text{So, } \frac{40}{100} A = \frac{2}{3} B$$

$$\frac{2}{5} A = \frac{2}{3} B$$

$$A = \frac{2}{3} \times \frac{5}{2} B$$

$$A = \frac{5}{3} B$$

$$\text{So, } A \text{ will be } \frac{5}{3} B \Rightarrow \boxed{\frac{A}{B} = \frac{5}{3}}$$

or  $3A$  will be equal to  $5B$

so ratio of 1st to second number  
will be  $3:5$ .

7 B

Selling Price of 17 balls = Rs. 720

Loss = cost Price of 5 balls

Cost Price of one ball ?

Loss = cost Price of 5 balls  
it means we sold the  
17 balls at loss of 5 balls which  
also means we sold 17 balls  
at Price of (17-5) balls.

So, we sold 17 balls at  
the Price of 12 balls.

$$17x - 5x = 720$$

So, Price of 12 balls = Rs 720

$$12x = 720$$

$$\text{Price of 1 ball} = x = \frac{720}{12} = 60$$

$$\text{Price of 1 ball} = \boxed{\text{Rs. 60}}$$

$$\text{Loss} = 5 \times 60 = \boxed{\text{Rs. 300}}$$

$$\text{Net Price of 17 balls} = 720 + 300 = \boxed{\text{Rs. 1020}}$$

So, Cost Price of one ball is  
Rs. 60.

7C

$$\text{Man} = M = 24 + \text{Son's age}$$

$$M = 24 + x$$

In 2 years

$$M+2 = 2(S+2)$$

Find Present age of son

$$\begin{aligned} M+2 &= 2(26+S) \\ M &= 50+S \\ S &= M-50 \end{aligned}$$

$$M+2 = 2(S+2) \Rightarrow 24$$

$$M+2 = 2S+4 \Rightarrow 24$$

$$M = 28 \Rightarrow 2S+4 = 24+S+2$$

$$\boxed{\text{Son's age} = 22}$$

$$\underline{M = x + 24}$$

$$\text{ie } 24 = 48 \text{ (after 2 years)}$$

$$\text{In 2 years} \Rightarrow M = 2(x+2)$$

$$\underline{\text{Sol}} \quad x+24+2 = 2(x+2)$$

$$x+24+2 = 2x+4$$

$$2x-x = 26-4$$

$$\boxed{x = 22 \text{ years}}$$

$$\underline{\text{Testing}} \quad x \text{ after 2 years} = 24 \text{ years}$$

$$24+24 = 48 \text{ which is equal}$$

to  $2x$  thus it satisfies the condition.So, Son's Present age is 22 years.

FD

i Rashid take 6 hours to type 32 Pages

ii Kamran take 8 hours to " 40 Pages

How much time is needed for them to type 110 Pages combined?

→ Rashid type  $x$  Pages in 1 hour.

$$x = \frac{32 \times 16}{63} \text{ Pages/hr}$$

$$x = 5.33 \text{ Pages Per hour}$$

$$\rightarrow \text{Kamran's Per hour rate} = \frac{40}{8} \text{ Pages/hour}$$

$$= 8 \text{ Pages/hour}$$

Combined Pages Per hour rate

$$= 8 + 5.33 = 13.33 \text{ Pages/hour}$$

$$\text{or } \frac{16}{3} + 8 = \frac{40}{3}$$

So Rashid & Kamran will type 13.33 Pages Per hour or  $\boxed{\frac{40}{3} \text{ Pages/hour}}$ 

$$\text{So 110 Pages will be typed in } \Rightarrow \boxed{\frac{110 \text{ Pages}}{13.33 \text{ Pages/hr}}}$$

$$\text{or } \frac{110}{\frac{40}{3}} = \frac{110 \times 3}{40}$$

$$= \frac{33}{4}$$

$$\text{Time required to type 110 Pages} = \boxed{8.25 \text{ hours}}$$

So 8.25 hours are required to type 110 Pages if both Rashid and Kamran work together.

Q. No. 5

### a. Disaster Risk Management and Importance of Risk Management;

Disaster Risk Management (DRM) is a systematic Process of forecasting, identifying, Preventing, Preparing, responding, managing risks and recovering from the natural or man-made disasters.

The objectives of disaster management are to reduce loss of life, economic losses, improve planning and setup a framework to achieve fastests and best results in case of any disasters such as floods, fires, earthquakes and tsunamis e.t.c.

The organization working for disaster risk management in Pakistan is National Disasters Risk Management Authority (NDMA) and other famous NGOs working in the field are Edhi Foundation, Al Khidmat and Pakistan Red Crescent Society.

## Importance of Risk Management in DRM:

- Identifying Hazards
- Prioritizing the Resources
- Reduction of Loss
- Improved Planning
- Informed Decision-making

### i) Identifying Hazards:

Risk assessment and forecasting helps to identify hazards and plan accordingly.

### ii) Prioritizing of Resources:

By proper risk assessment the resources can be allocated and better preparation is done.

### iii) Reduction of Loss:

The losses of life and property are kept low and lives are saved by the Risk Management.

### iv) Improved Planning:

Planning and preparation of evacuation and whole relief operation is improved by risk management.

## II) Informed decision making:

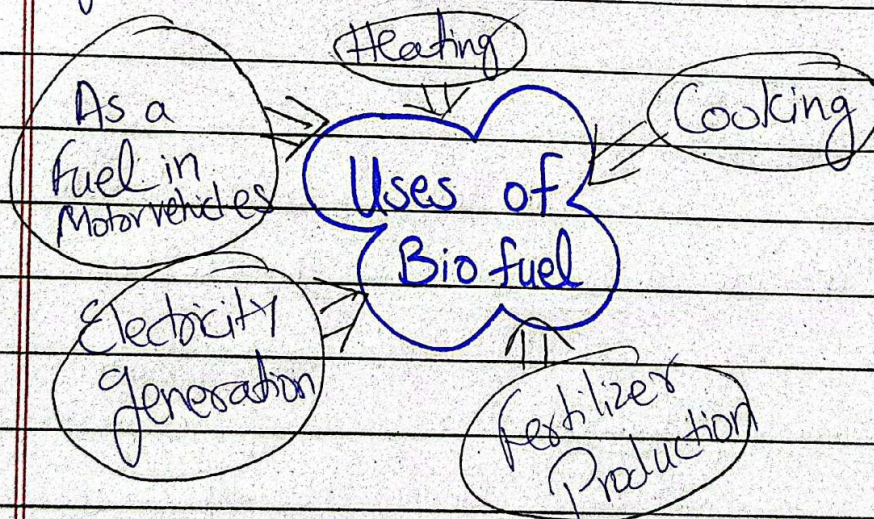
Risk management helps with the monitoring of disasters and helps with improved and informed decision making.

Q. No 5

(b) Biofuel - Production of biodiesel and biogas.

### Biofuel

A type of renewable fuel that is produced by biological material like plants, animal and other organic substance. They are mainly produced by corn, soybean and animal waste and are an environment friendly option to help lower carbon footprint and greenhouse gas emission.



### Production of biodiesel

It is a liquid biofuel used in diesel engine.

Raw material: Animal fats, vegetable oils

## Process

- 1- Oils are collected and filtered
- 2- Methanol is added in oils
- 3- A catalyst is added
- 4- Oil reacts with alcohol to produce biodiesel and glycerol
- 5- Biodiesel is separated from glycerol and filtered to purify impurities.

## Production of Biogas

Biogas is usually Methane ( $\text{CH}_4$ ) made from organic material.

Raw material: Animal waste, agricultural waste

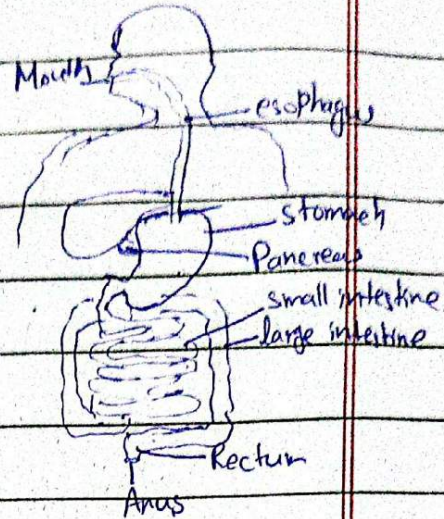
## Process

- 1- The organic waste is mixed thoroughly with water.
- 2- The mixture is fed into an airtight container.
- 3- The microorganisms digest the waste in absence of oxygen and produce methane and carbon dioxide.
- 4- The gas produced is collected and stored for usage.
- 5- The container is cleaned of the residue.

Q NO 5 (C)

What is digestive system? Role of stomach and small intestine.

Human digestive system consist of the set of organs which are responsible for break down of food into simple substance, digesting them, absorbing nutrients and moisture into the blood so body can gain energy, growth and repair itself.



## Role of Stomach

Stomach is a muscular organ used to digest food. Its functions are following:-

### 1) Storing Food:-

It temporarily stores food for a few hours.

### 2) Mechanical Digestion:-

Its walls churns, mixes and break down food.

### 3) Chemical Digestion:-

HCl and Pepsin are secreted into the stomach that help with the chemical digestion.

### 4) Protection

It also protects the stomach lining by use of mucus.

## Role of Small Intestine

The long tube where most of the digestion and absorption takes place. Its functions are following:

### 1) Completion of digestion:

It is the part where digestion is completed and it receives the bile from ~~Pancreas~~ liver, Pancreatic juice and Intestinal juice to complete digestion.

### 2) Absorption of nutrients

The nutrients are absorbed into the blood in small intestine by a finger like part called villi.

### 3) Transportation of nutrients:

The nutrients are then transported to all the parts of body for use.

The digestive system ensures proper digestion of food and absorption of nutrients.

## Q 5 (d)

### Plastics

Plastics are synthetic and semisynthetic materials made of Polymers which are chains of repeating molecules. They can easily be molded into different shapes and retain shape upon cooling.

### Properties of Plastics

- Moldable - It can be molded into different shapes.
- Water resistant - It resists water.
- Flexible - It is very flexible and ~~strong~~.
- Light weight - It is lightweight.
- Strong - It is strong and durable.

### Applications of Plastics

- Crockery : It is used in making utensils.
- Packaging material : It is used in Packaging industry.
- Household items : Used to make household items, buckets, etc.
- Medical Field : Used to make gloves, syringes.
- Automobiles : Used in making dashboard of cars.

### Environmental risks of Plastics

1. It is non-biodegradable and requires thousands of years to decompose.
2. It causes land and water pollution, burning it causes air pollution.
3. It is harmful to animals and can lead to diseases or death.
4. Micro-Plastics enter the food chain and cause diseases.